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PCWorld

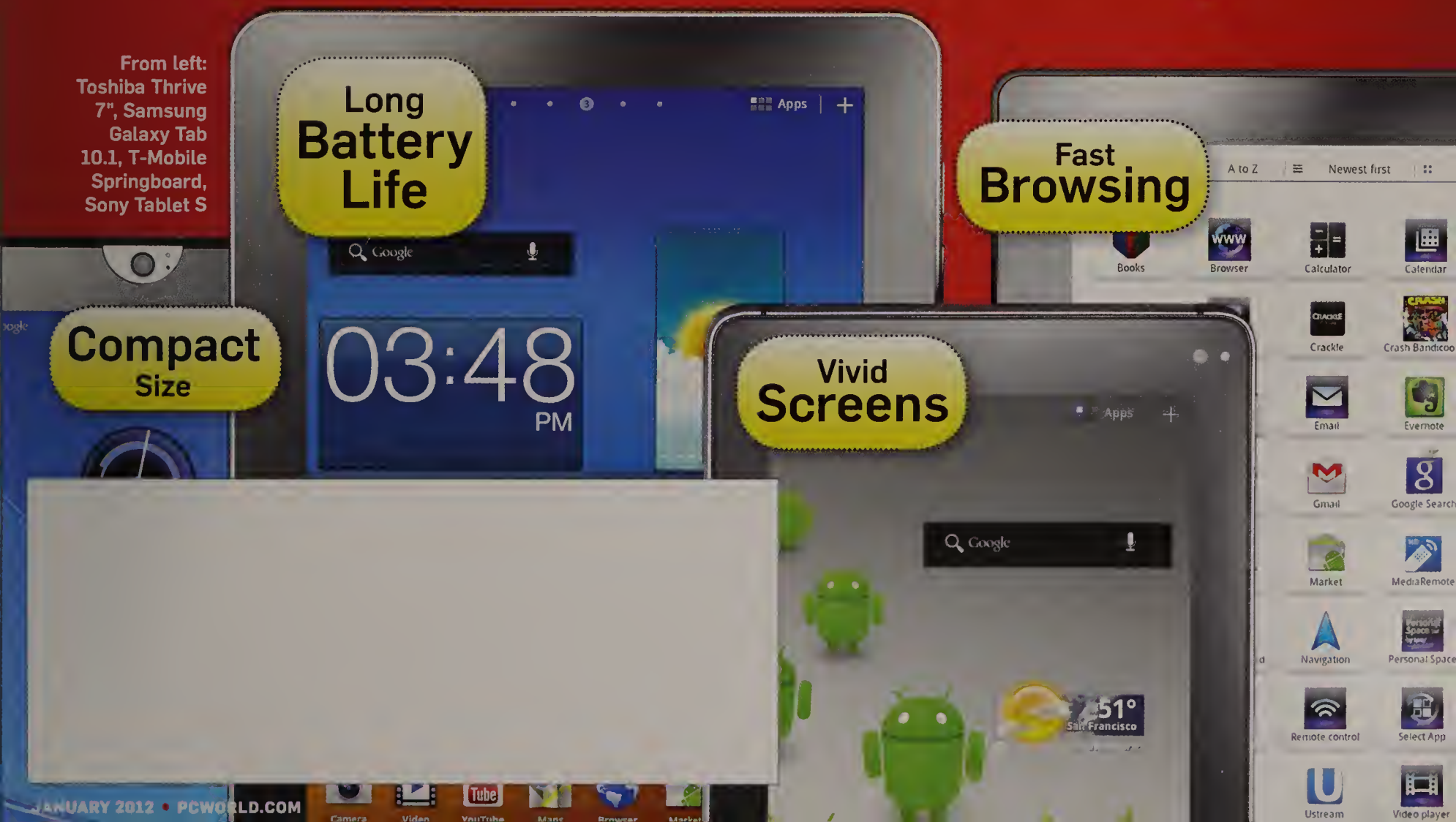
LAB TESTED

THE TABLET YOU WANT TODAY

(It May Not Be the iPad)

p.56

From left: Toshiba Thrive 7", Samsung Galaxy Tab 10.1, T-Mobile Springboard, Sony Tablet S



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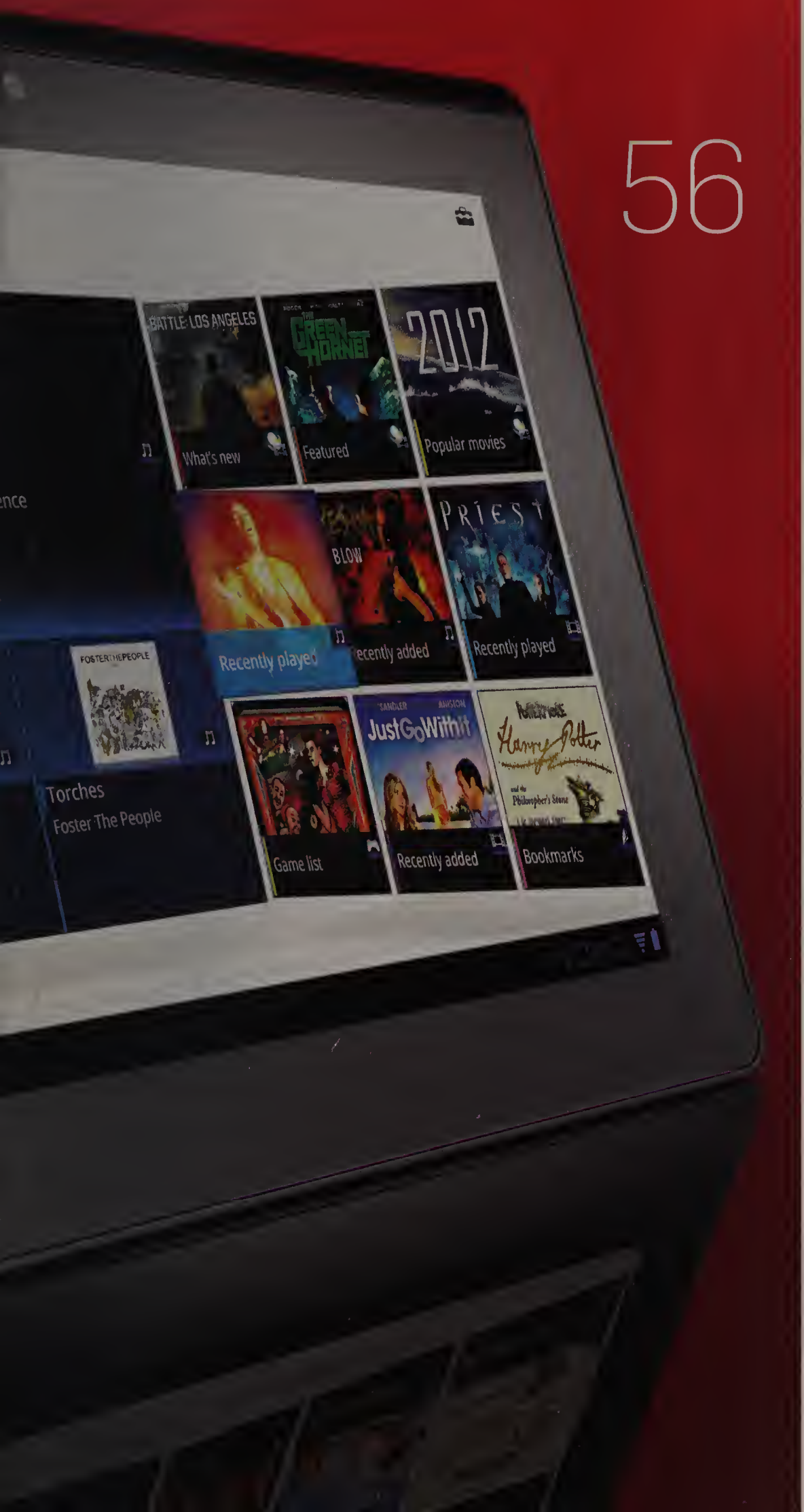

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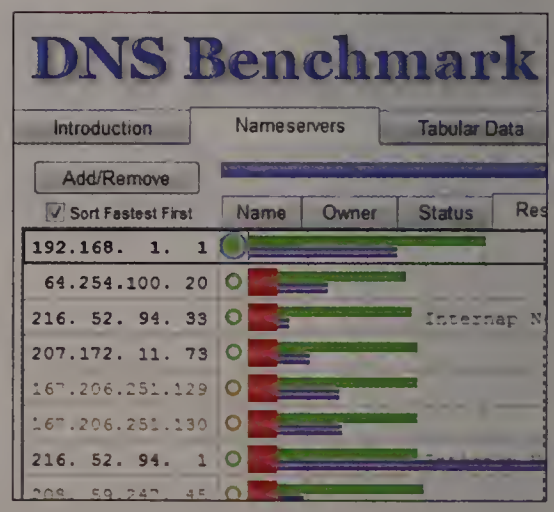

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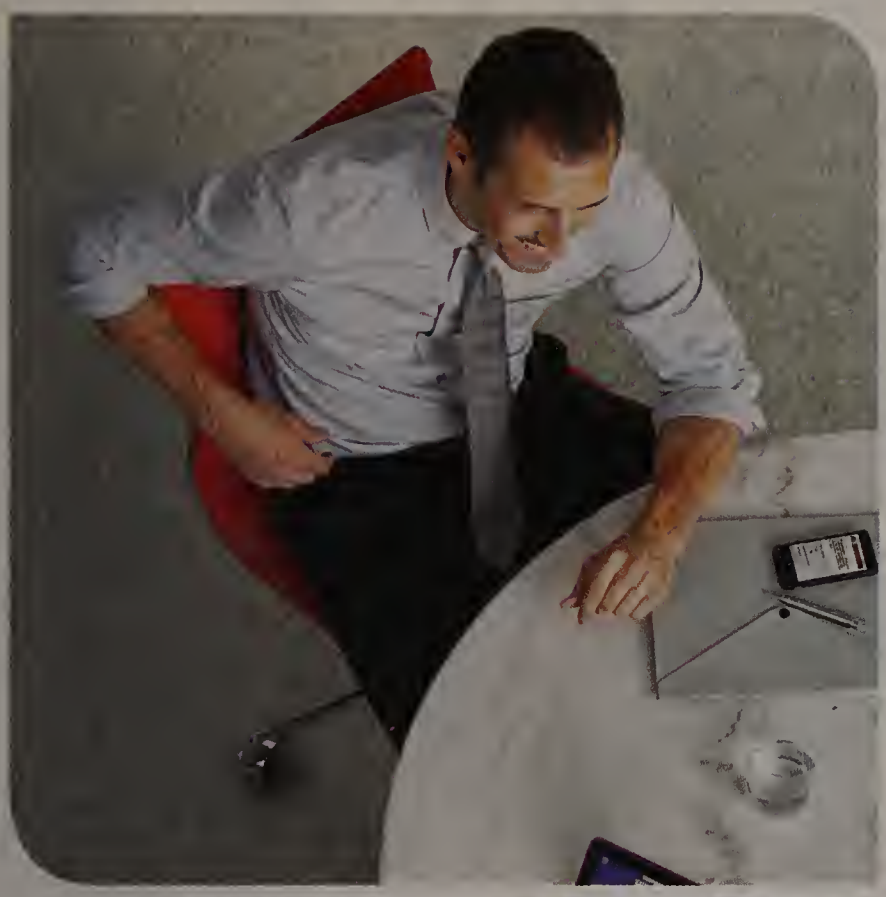

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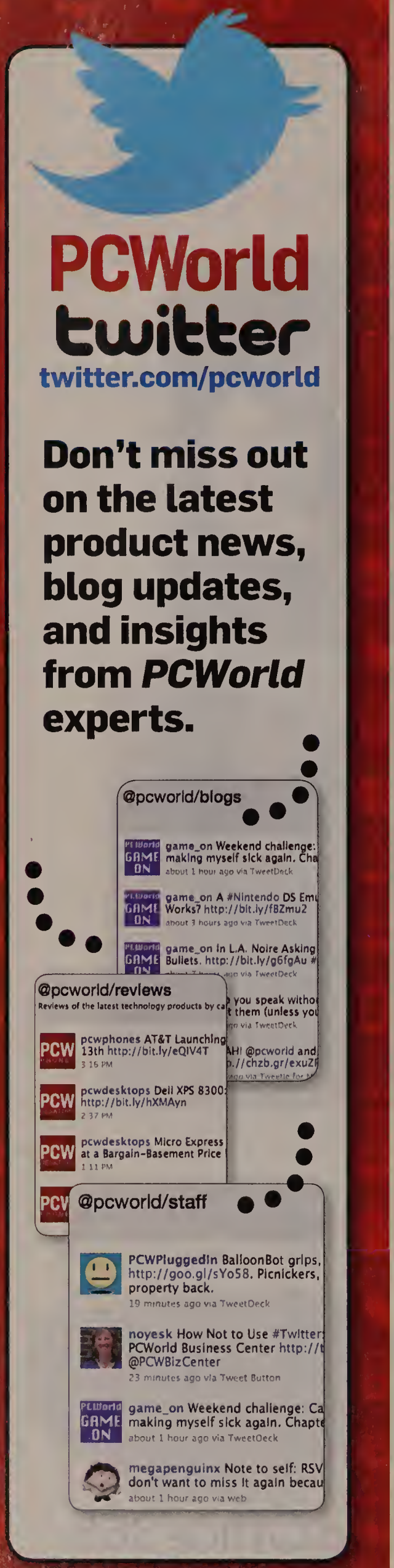

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Techlog

STEVE FOX

Tablets Enter Their Adolescence

They're limited and exasperating. But you may find yourself in love anyway.

WE TESTED MORE than 20 models in our latest foray into tabletland.

WHAT A DIFFERENCE seven months makes. Back in June 2011, when last we looked at tablets, we asked, on the cover: "Can Any Tablet Beat the iPad?"

The question was largely rhetorical. Though we were enthusiastic about the first generation of Android tablets, Apple's iPad 2 was the clear winner. Today, we have a horse race. According to Senior Editor Melissa J. Perenson (see "Android Tablets: Finally Ready?" page 56), the iPad 2 and its rivals—from Samsung, Sony, and other makers—are now roughly comparable.

Even so, it's worth recognizing that today's tablets are a work in progress. We're still figuring out what these devices are supposed to be, and what we should expect them to do. The design and technology are in their adolescence, and the resulting products simply aren't polished. If we could fast-forward to late 2012 and put today's iPad or Galaxy Tab through its paces, we'd probably laugh at its crudeness.

This point was driven home for me when I pulled a first-generation iPad out of the bottom of my desk drawer the other day. What a clunker! It felt heavy, bulky, and sluggish. I was nonplussed: So this was the gizmo that sold 300,000 units the day it was introduced (April 3, 2010) and was hailed in the press as the Next Big Thing. Many early iPads are still in use; but plenty of others are now $500 paperweights.

Using a tablet today evokes contradictory emotions—part exasperation, part delight. Depending on which platform you choose, chores as basic as multitasking, word processing, or downloading an app that sizes correctly to your screen can be maddening. But the first time you plop down on your couch to catch a baseball game on MLB.TV or watch a movie on Netflix, you might fall hard. The combination of portability and a beautiful screen goes a long way toward banishing the buyer's remorse you might otherwise feel.

So let's celebrate today's tablets, despite all their limitations. And keep looking forward to the first day when we can buy one of these devices without reservation. I can hardly wait.

Steve Fox is editorial director of PCWorld.

What to Expect From CES 2012

THE NEW YEAR brings technology's most anticipated annual rite, CES: an over-the-top gorge of product, technology, and business introductions, kicking off January 10 in Las Vegas. In November 2011, CES (which in past years stood for "Consumer Electronics Show") offered a sneak peek, unveiling its 2012 Innovations Design and Engineering Awards honorees in 32 tech categories. *PCWorld* Senior Editor Tim Moynihan was one of the judges, and he was particularly taken with the Lytro light-field camera, which lets you focus your picture after you've snapped it; the Audiovox RCA USB wall-plate charger, which converts any outlet into a USB charging station; and the Sonomax Eers, headphones that create custom-fitted earbuds using liquid silicone cartridges you squirt into your ears. See a slideshow of all of Tim's favorites at find.pcworld.com/72415, and follow our full CES coverage as it unfolds at go.pcworld.com/CES.

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PCW Forum

November's "First Look at Windows 8" found its share of readers who doubt that Microsoft's next operating system will be a significant advance. On the lighter side, a story testing a purported tech trick with a car's key fob drew some interesting (and varied) explanations of our results.

Our Windows 8 Preview: A Mixed Reaction

Let us see if Microsoft gets it right with Windows 8. The company's track record seems to show that every other release either has not caught on or has been problematic. Windows 95 was good considering the massive change it represented from Win 3.0. Windows Me was a disaster. XP was great. Vista was a mess. Windows 7 was spot-on. Hope Windows 8 does not follow this pattern.

Ralph Schlessinger, Henderson, Nevada

This new OS [Windows 8] is looking mighty good. It's really taking shape, and has some rather nice features.

The whole PC industry is starting to get interesting, and about time too. It's felt stagnant for years.

HankRearden, PCWorld.com forums

Windows 8 isn't due out till mid- to late 2012, so the hype today is pure vaporware marketing. Who knows what it will be in the end—it could be another Vista.

It is telling that over 40 percent of Windows users still use a more-than-ten-year-old operating system: XP.

MarekMinecki, PCWorld.com forums

Regarding your online comparison of Apple's OS X Lion and Windows 8 (find.pcworld.com/72390): Lion is much more evolutionary than Windows 8, which is a radical departure of a kind not seen since Windows 95 or the leap from OS 9 to OS X. Windows 8 offers a merged solution [across desktop and mobile platforms]. The Metro interface is nice with a few applications, but it could be unwieldy when used with a slew of corporate software in an enterprise setting, or with bloatware in a consumer setting.

KPOM, PCWorld.com forums

> Regarding "Mobile Patent Wars" (find.pcworld.com/72391): Much of the problem is global markets, with patents in multiple countries. Patent reform is needed if we are to grow as a global economy.
>
> *mathion, PCWorld.com forums*

Key-Fob Tech Trick Test

When I read the item "Boost the Range of Your Car's Key Fob" [*Here's How*, November 2011], I thought you were publishing your April Fool's issue five months early. But my test results matched yours! Although being able to lock/unlock the car door from a greater distance can be handy, the improved ability to beep the horn increases your success in finding your lost car in a crowded parking lot.

Ian Taylor, Huntsville, Ontario

I seriously doubt that the "enhanced" range of the key fob has anything to do with holding the transmitter against one's head. Instead, it may have much more to do with the directionality of the key's transmitter, which must surely be affected by the metal in the key. Thus, you should have carried out some additional, objective tests in which you pointed the key in different directions. The directionality of the key fob may also depend on the brand of car.

John Lewis, Wellesley, Massachusetts

Actually, [the explanation for] this trick is a no-brainer (so my Ph.D. nephew told me after we heard about it on *Car Talk*). The fob antenna is a loop, and the signal delivered to the receiver in the car is thus proportional to the antenna cross section signaling it.

In normal mode, the antenna is horizontal, and you have a signal from »

ILLUSTRATION: GARY NEILL

only a small, straight-line antenna. Held vertically, the entire loop is signaling. It doesn't matter if you put it next to your forehead or chin, or if you hold it at arm's length high in the air. You get 2.5 to 3 times the signal strength.

Carl Carter, Hillsboro, Oregon

HDTVs: LCDs or Plasma?

I see you have published your latest love letter to LED/LCD HDTVs ["Top TVs of 2011," November], extolling their motion blur, gray blacks, and narrow viewing angle (admittedly improved since last year). That the writer seems unaware of the difference between edge-lighting (*not* the same as backlighting) and full-array backlighting (with or without local dimming) makes me question his baseline techno-savvy.

The ratings in *PCW* are essentially polar opposites of those from CNet and *Consumer Reports*, which say that LED sets are starting to approach the quality of plasma TVs rather than the other way around. CNet and *Consumer Reports* say that 3D plasma sets are superior to LED/LCD sets for high-quality 3D viewing. Perhaps the *PCW* prejudice against plasma TVs could be tempered into something reasonable—or at least technically thorough and correct.

Tom Swedenburg
Palm Springs, California

Author's response: As far as we know, CNet and *Consumer Reports* typically do their testing in a pitch-dark room, which favors plasma tech. We test in a dimly lit room because we consider that to be closer to a real-world viewing scenario, which can often cause plasmas problems. Despite that, LG's Infinia 50PZ950 plasma set still made our Top 5.

As for the difference between LED-edgelit and LED-backlit TVs, the vast majority of TVs using LEDs as a light source are edgelit. We receive very few true LED-backlit sets for review—and when we do, they don't perform radically better than LED-edgelit sets.

Ultimately, however, all that matters is how an HDTV performs in our tests.

—Patrick Miller

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Alert: Sleazy Ads on Android Devices

BY TOM SPRING

Sketchy ads promote battery-saver apps for Android, but the programs may really be designed to steal your data—or your money.

SCAREWARE HAS GONE mobile: Users of Android devices are starting to see sleazy ads warning that they need to upgrade their device's battery. The supposed battery-saver apps that the ads prod you to download, however, could endanger your privacy or siphon money from your wallet—and generally will do nothing to improve your gadget's battery life, security experts say.

Sometimes you don't even need to agree to download the apps. *PCWorld* spotted an ad on an Android phone for a battery utility called Battery Upgrade. Tapping the ad—even by accident—launches the phone's Web browser, which automatically initiates the download of the app's installer file.

"These ads cross a line," says Andrew Brandt, director of threat research for Solera Networks. It's one thing to market a worthless battery app, he says, but quite another to scare or deceive people into installing a program they don't need.

The ads are reminiscent of scareware marketing tactics on PCs, where ads pop up, warning that your computer is infected and advising you to download a program to fix the problem. Often, the program is merely a cover for software that spies on users.

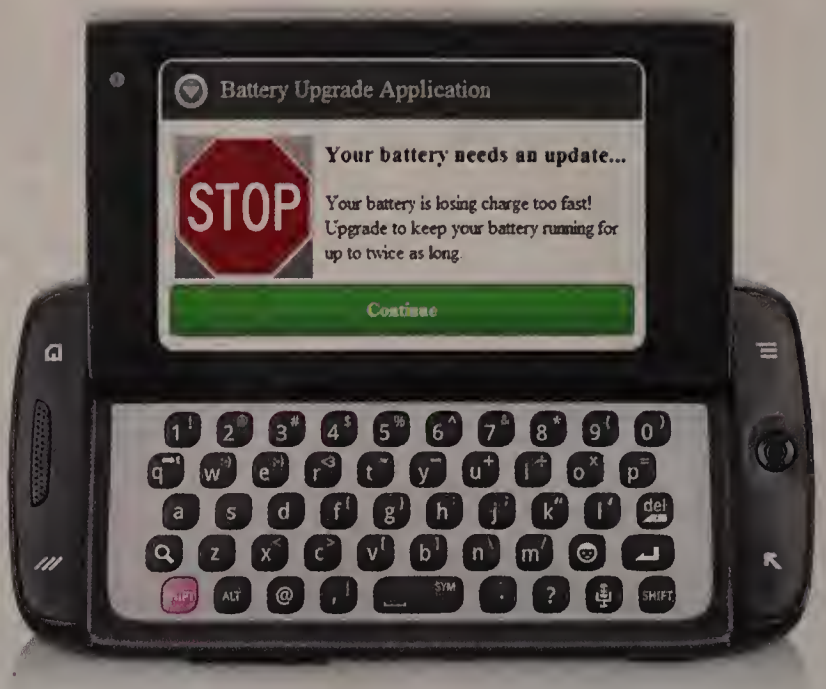
Why use battery ads as a ploy? They tap into a common anxiety, Brandt says. Phone users aren't yet concerned about viruses, but they are worried about their battery being sucked dry. »

ILLUSTRATION: JOHN UELAND

Privacy-Busting App

When we tapped on an ad in the Android version of the game Scrabble (games are a common venue for these ads), the installer program for the advertised app, Battery Upgrade, downloaded automatically.

Brandt says that this app, called both Battery Doctor and Battery Upgrade, is especially problematic: Not only does it not upgrade a battery or extend a charge, but when installed and unlocked, it harvests the address book; the user's phone number, name, and email address; and the phone's unique identifying IMEI number. With this data, an attacker could clone the phone and intercept calls and SMS messages, or siphon money by initiating premium calls and SMS service.



TAPPING ON THIS sort of come-on may put your data at risk.

Worse, the ad links to step-by-step instructions on how to lower your phone's security settings to install the battery utility, Brandt says, adding, "There is no question in my mind that this technique could be used for something far more sinister than a worthless battery app." (We couldn't reach the makers of Battery Doctor/Battery Upgrade for comment.)

Malicious hackers like to target phones because they provide a direct payoff, says Kevin Mahaffey, cofounder of Lookout Mobile Security. "As opposed to your PC, a phone has a unique connection to a payment system (through your wireless carrier). When hackers have taken over a phone, that's the first thing they try to exploit," he says.

And security firm McAfee says that malware targets the Android OS disproportionately because it's the largest mobile platform in the world. In a 2011 report, McAfee said that malware targeting Android phones had jumped by 76 percent from the preceding quarter.

For tips on protecting your phone—for starters, be suspicious of alarmist pop-up messages—and for the full online story, browse to find.pcworld.com/72425.

TECH SPOTLIGHT: INNOVATIVE ACCESSORIES

GRIFFIN BEACON If your coffee table is crowded with remote controls, replace them all with your smartphone. The Griffin Beacon turns your phone into an easy-to-use, never-lost remote for your home entertainment center, and is available for Android and iOS models. Beacon pairs with your phone via Bluetooth and works with a free universal remote app. Price: $70.

PARROT AR.DRONE This device is a remote-controlled, camera-equipped quadicopter, with your iPhone, iPad, or Android phone as the remote, connecting via Wi-Fi. You can pilot it via the free AR.Freeflight app (iOS, Android) or use it to play dedicated free, multiplayer games at game parties. The AR.Drone is designed for both indoor and outdoor use. The Drone sells for $300.

JAWBONE UP This wristband uses sensors and a motion-tracking engine to track your sleep, diet, and exercise habits, and then nudges you to improve them—it has an iPhone and iPod touch-free companion app that can send you messages during the day. It is sweatproof and water-resistant, and the battery is meant to last ten days on one charge. A band costs $100.

NEST THERMOSTAT It could help you save up to $173 per year on energy bills after learning your daily schedule (in about a week) and preferred temperatures. A free companion app for iPhones (soon for Android too) lets you control Nest remotely, so the house is at the perfect temperature when you arrive. It runs on a built-in rechargeable battery. A Nest sells for $250.

Services That Can Move Your Music to the Cloud

MAJOR TECH FIRMS, including Amazon, Apple, and Google, are lining up alongside smaller service providers to help consumers store and stream their music collections online.

Accessing your music online is particularly ideal on mobile devices, since many phones and tablets are limited in storage to 16GB or less.

Some services require you to upload your music, while others will match your files with an online catalog, no uploads required. And one service (Murfie) does something original: It lets you ship your entire CD collection to a storage facility in the Midwest, where somebody else will digitize your music collection for you (and you can sell or trade CDs).

Amazon Cloud Drive (for storage) and Cloud Player (for streaming): 5GB of storage is free (20GB or more starts at $20 per year); works with most major Web browsers, with two native Android apps, and with iOS via the Cloud Player site; requires uploading.

Google Music Beta: Free now (may become paid in the future); works with most current PC and mobile OSs; requires uploading.

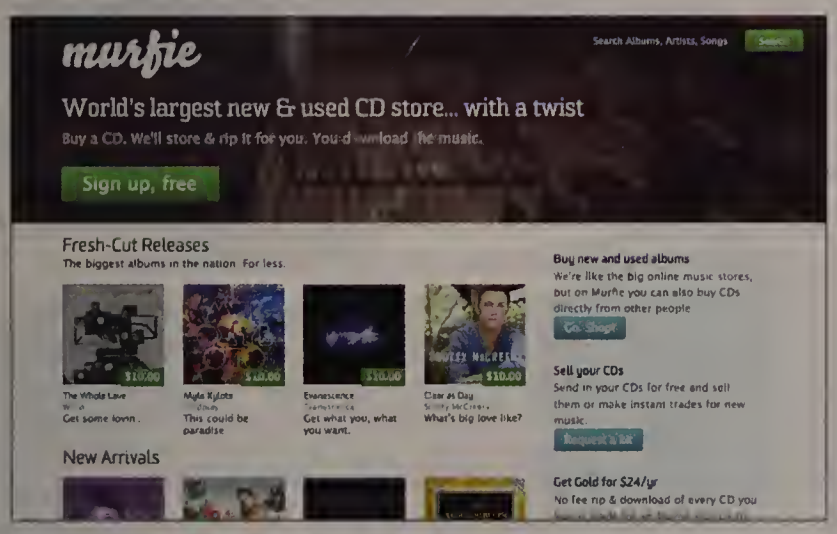
iTunes Match: Costs $25 per year; works with Macs or PCs with iTunes 10.3.1 or higher and devices running iOS 4.3.3 or later; is part of Apple's iCloud sync service.

MP3 Tunes: 2GB of storage is free (50GB or more starts at $40 per year); works with just about all platforms; requires uploading.

Murfie: Annual Gold Membership is $24 (à la carte pricing options available); works with most modern PC Web browsers; digitizes your music from your CDs for download on request.

For more on these cloud music services, browse to find.pcworld.com/72384.

—Ian Paul



MURFIE BILLS ITSELF as an online marketplace where you can buy, sell, or trade CDs, but it is also a remote-storage service.

ILLUSTRATIONS: JOHN UELAND

BRIEFS

Hard-Drive Shortage Prompts Price Hikes

Flooding in Thailand, producer of key hard-drive components, is wreaking havoc on HDD manufacturers. And the consumer retail market will likely suffer from significant shortages and price increases, analysts say. Two industry research firms, IDC and IHS iSuppli, have predicted that the overall market shortage will reach 25 percent to 28 percent over the next six months. This means that users should brace themselves for sticker shock: Prices on retail sites such as Newegg.com and Pricegrabber.com are already skyrocketing.

IE Posts Biggest Share Drop in Three Years

In October 2011, Microsoft's Internet Explorer browser lost its largest amount of usage share in three years, a Web-metrics firm reported recently. IE dropped 1.8 percentage points to 52.6 percent during October. Only IE's November 2008 drop of more than 2 percentage points was larger, according to Net Applications. Conversely, Google's Chrome and Apple's Safari saw share increases—1.4 and 0.4 percentage points each.

Acer Debuts Four New All-in-One PCs

Acer recently announced four all-in-one desktops just in time for the holidays. Two of the systems feature multitouch displays with 1080p (high-def) resolution, big hard drives, tons of RAM, faster processors—and attractive starting prices. The new AZ5771, for example, starts at $750 ($850 as a preorder on Amazon.com). The PCs should be available now.

Blu-ray: Still Alive as Disc Sales Soar

Is Blu-ray a terminal case, soon to be replaced by streaming services? Not so fast, says the Digital Entertainment Group, a studio-funded trade group based in Los Angeles. Blu-ray disc sales in the United States soared 58 percent in the third quarter of 2011 versus that period last year, according to a recent DEG report. All the same, streaming services are expected to win out over time.

Ice Cream Sandwich Update

PHONES AND TABLETS with the Android 4.0 operating system start arriving soon—but which models will get the update, and when?

Galaxy Nexus: Expected soon (at this writing) from Samsung, this is the only new phone known for sure to be coming preloaded with Ice Cream Sandwich (ICS).

LG Optimus 2X: LG has confirmed via its Facebook page that it is "in the process of planning the ICS OS update for the LG Optimus 2X as well as other LG high-end smartphones."

Motorola phones: Motorola says it will be upgrading the Droid Bionic, Droid Razr, and Xoom to ICS—probably some weeks after Google's official release of the update.

Nexus S: Google confirms that it's working on an ICS update for the Nexus S, but not for other Nexus models.

Sony Xperia: The Dutch division of Sony Ericsson says Xperia phones will get ICS, but no word on timing.

Gingerbread phones? Google says that Ice Cream Sandwich should theoretically work on any Android 2.3 (Gingerbread) device, but when and if a model receives the update is up to carriers. You can find a list of phones running Gingerbread that may get the ICS update at find.pcworld.com/72420.

—Eric Mack

GEEKTECH

Key-Ring QR Code for Lost Keys: Good Idea?

How useful are QR codes in the real world? Our experiment tries to find out, using a clever key-chain trick.

HERE'S THE CONCEPT: You attach a QR code to your key ring; if you lose the ring and someone who finds it scans the code, that scan opens a texting window with the message "I found your keys!"—a message set to be sent to your phone.

When I first saw this suggestion (at find.pcworld.com/72385), I couldn't help but wonder how many of the people who might find my keys would have smartphones, and how many of them would even know what to do with a QR code. I decided to put this idea to the test.

I went to a local hardware store to make copies of an old key, then printed out a page with a QR code tiled across it and took that sheet to a FedEx Office store to get it laminated. I cut the laminated QR codes to create tags, and then attached the tags to six key rings carrying the copies of the old key. If someone were to scan the QR code, it would compose a new text message that they could send to me to let me know that they had found the key ring. Then I left these keys in various locations around San Francisco.

A "LOST" KEY ring—notice the laminated tag that bears our writer's QR code for this little field experiment.

In a matter of hours after dropping off the keys, I received a text: "I found your keys!" I talked briefly with the person who found them, who agreed to leave the key ring for me at a specific location, where I easily found it later. So far, success!

The next day brought a text about a second key, but this time I was unable to locate the key ring, and I concluded that someone else must have taken it for whatever reason.

A few days passed before someone found a third key. Eventually I received a text saying it was still where I'd left it. But when I got there, I found a mangled key ring, and the key gone.

I don't know what happened to the other three, but my experiment yielded a 50 percent return rate in a city that has a reputation for being technologically savvy.

If you want to try this experiment yourself, here are some tips:

1. Cut out the QR code tags before laminating them, and leave a margin of laminating plastic around the edges so the laminate sticks to itself (this will help keep water out).

2. If you're paranoid about giving out your phone number, set up an email address for this express purpose and create a QR code for it. That way, a finder with malicious intent can't gain free entry to your home. And be sure to write that email address on the back of the tag so those without smartphones can contact you.

3. Have the person who finds your keys hide them out of sight so nobody will try to turn them in to a lost-and-found without letting you know. ●

—Albert Filice

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Staff Picks

NEW PRODUCTS THAT HAVE OUR EDITORS DROOLING

Sharp Aquos LC-80LE632U

Bigger isn't always better—unless you're talking TVs. Sharp's new LCD HDTV is 80 inches, dwarfing those 55-inchers. Sure, it costs $5500, but wait till the linebackers show up more than life-size!
find.pcworld.com/72419

Corsair Vengeance K60 keyboard

If you love smoking your virtual enemies, you'll love the Vengeance K60 ($110), which uses responsive Cherry MX Red mechanical key switches and has soft, slip-proof gaming keys for top-flight play.
find.pcworld.com/72421

Lytro Camera

Sick of snapping a picture of a great scene, only to find out later it's fuzzy? The Lytro camera (starting at $400; due in early 2012) lets you focus *after* you take your shot, by capturing much more light.
find.pcworld.com/72417

Samsung Galaxy Nexus

When you read this, the hotly anticipated Galaxy Nexus may be available. The first phone to run Android 4.0 (Ice Cream Sandwich), it will also have a 720p AMOLED screen, 4G LTE support, and an instant-shutter camera.
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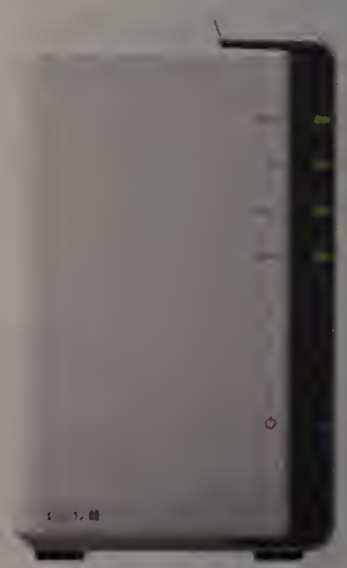

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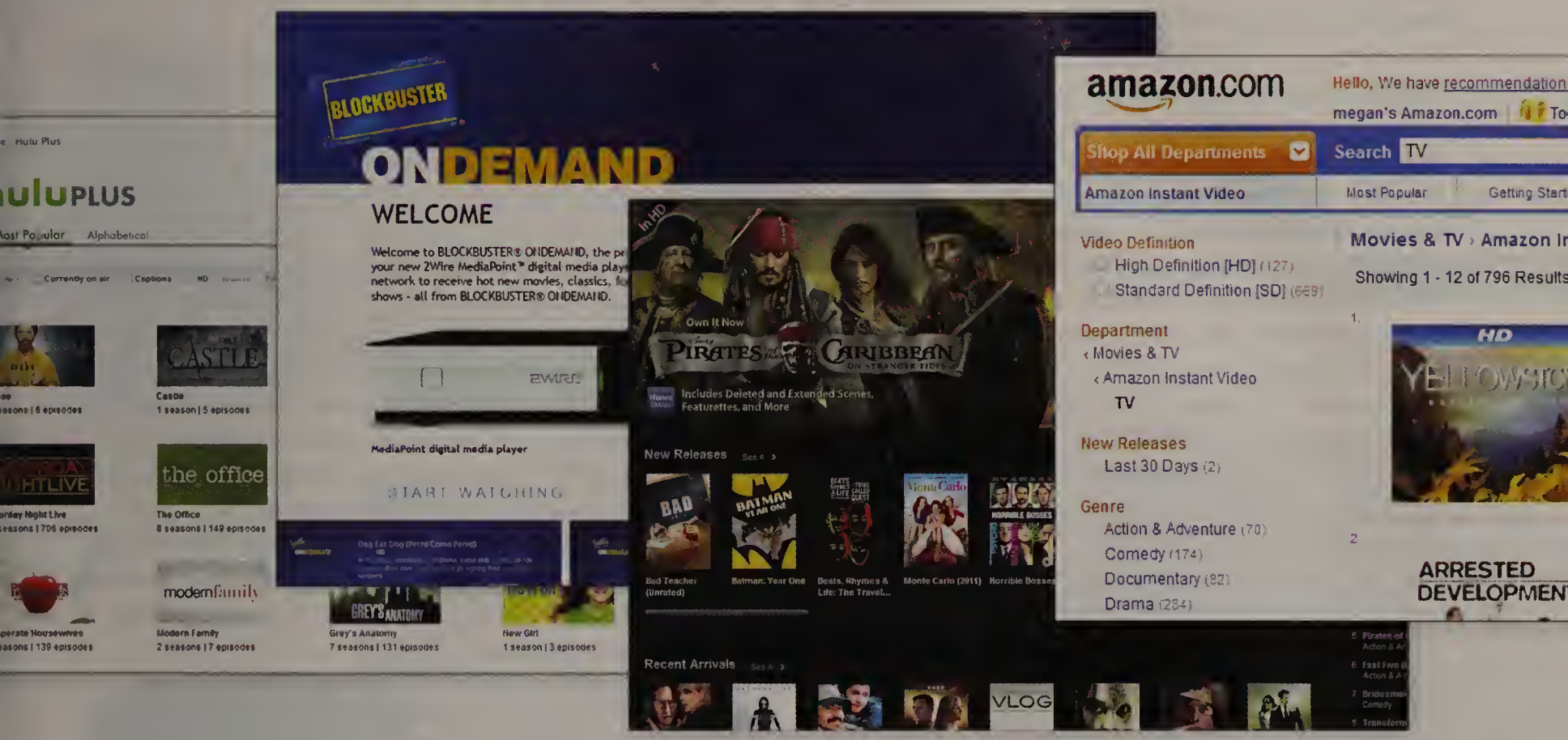
Consumer Watch



Four Netflix Alternatives Tested

Fed up with Netflix? We test four alternative services for video streaming or downloading.

BY SARAH JACOBSSON PUREWAL

FOLLOWING SOME UNPOPULAR changes in its service, Netflix saw many fans head for the exits and seek an alternative.

I tried four rival for-pay video streaming and rental services: Amazon Prime, Blockbuster On Demand, Hulu Plus, and iTunes rentals. Let's look at how these services fared against Netflix on price, content, streaming quality, and ease of use.

Amazon Prime

Price: $79 per year

Content: The inventory at Amazon Prime includes a few good, recent titles; but most of the items available through Amazon Prime are older (*Notting Hill*) or classic (*High Plains Drifter*). A recent deal with Fox adds 2000 TV shows and movies.

Streaming quality: You can stream videos to a PC, Mac, or compatible device; or you can download a rental video and watch it offline on your PC or TiVo. To download videos, you must use Amazon's Unbox player, which is not Mac-compatible.

Amazon's streaming video quality was poor when I tried it. I could see blocks and fuzzy specks in many scenes. Though most of these blemishes were confined to the edges (and were therefore tolerable), the service definitely offered the worst video quality I encountered in my testing.

Ease of use: Amazon Prime is easy to set up and use. Over 12 months, the $79 fee works out to about $6.60 per month, so it's cheaper than the other services, depending on usage.

Blockbuster On Demand

Price: $1.99 to $3.99 per rental

Content: Blockbuster On Demand has fewer new releases than iTunes or Amazon Prime. The "Action and Adventure" category lacked such 2011 titles as *Thor* and *Fast Five*. The "Romance" category included only seven titles from 2011.

Streaming quality: Blockbuster lets you either download the movie and view it in Blockbuster's Movielink player or stream it in your browser. With Movielink, the image quality is better (and you don't have to worry about streaming skips), but the download takes a while, depending on your connection speed.

Blockbuster's video streaming quality was close to DVD level in my tests. I noticed slight artifacting in darker scenes.

Ease of use: Blockbuster's website makes you perform unnecessary steps to rent a movie from its On Demand section. »

Hulu Plus

Price: $7.99 per month for unlimited streaming

Content: Hulu Plus is strong on TV but weak on recent mainstream movies. Many of Hulu Plus's TV shows are unavailable until one day after they air.

Streaming quality: Hulu offers multiple streaming options, including 720p HD, 480p, 360p, and 288p (in case you have a slow connection). Streaming quality was crisp, clear, and very smooth in all modes except full-screen; in that mode, twice in a 90-minute test period, the video began displaying colorful, blocky patterns and the picture jumped back and forth between two frames until I skipped to another spot in the video. Also, unlike other services, Hulu forces paying customers to sit through ads.

Ease of use: Hulu Plus's interface is easy to use. When you specify a TV show, you can go to the show's main page or jump directly to the latest episode. Hulu also lets you add shows to your Favorites list and receive notification when a new episode or clip becomes available.

iTunes Rentals

Price: $0.99 to $4.99 per rental

Content: For people interested in popular movies or in TV shows that are no longer available on Hulu Plus, iTunes has lots of titles available for rental in its store. It has few older movies, except famous ones like *Dr. Strangelove*.

Streaming quality: You download rather than stream rentals from iTunes, so video quality is excellent. If you have a Mac, you can also rent an HD version of movies (HD versions aren't available for PCs). The quality is DVD-level, without the danger of skipping or scratches.

Ease of use: You have to rent content via iTunes, whose interface isn't especially user-friendly. The iTunes search box produces a lot of extraneous results, including music and app matches. Also, iTunes rentals are incompatible with Android devices and connected TVs.

SKEPTICAL SHOPPER

Should Your Phone Be Your Cash Card?

MEGAN GEUSS

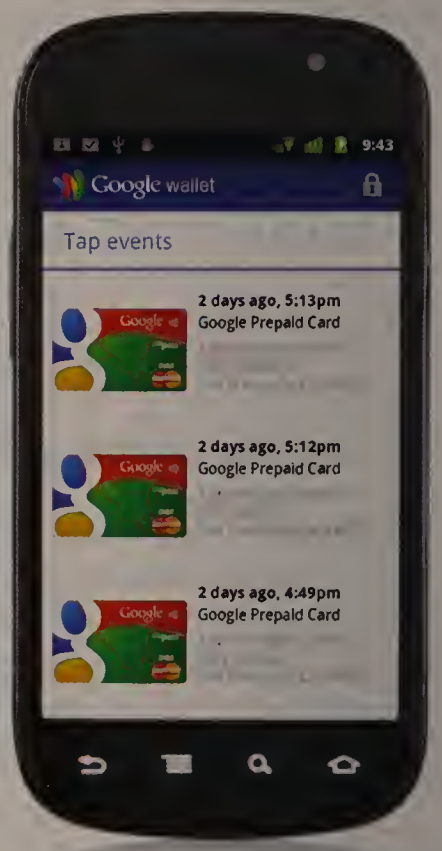
Near Field Communication lets you pay at the register with a tap of your phone. But is the system safe—or necessary?

IF YOU OCCASIONALLY can't find your wallet, often don't carry a checkbook, but always have your phone handy, you might like to pay your bill at a local store by bumping your phone against a digital receiver.

In coming months, Near Field Communication receivers will appear next to the cash registers of many brick-and-mortar stores. NFC is a way to transfer information wirelessly between two nearby antennas. Google has equipped its Sprint Nexus S 4G with an NFC antenna and offers the much-anticipated Google Wallet app to encourage shoppers to make phone-based payments. RIM is adding NFC antennas to many of its new phones, and is introducing a feature called "Tag" that will let BlackBerry users transfer not just payment information, but any kind of data over NFC.

Safer Than a Credit Card?

But will NFC make buying things even more convenient? One advantage of touchless pay is that you don't have to give your credit card to a vendor and risk having it mislaid during a particularly busy time at the register. And theoretically, paying with your phone is safer than owning a credit card, because cards are easy to lose and have your account number displayed on the front. When you lose a card, the bank must assign you a completely new account number and credit card. If you lose your NFC-equipped phone, you can wipe your credit information remotely and apply your account details to a new phone.



GOOGLE WALLET KEEPS track of your NFC buying or "tap events."

On the other hand, rushing out to buy an NFC-enabled phone makes sense only if you often shop at major retailers and chain stores like Macy's, 7-11, and Peet's Coffee. Some local retailers in big cities accept NFC payments; but even at stores that support NFC payments, you may need a backup card now and then. In my tests for *PCWorld*, the NFC receivers in a high proportion of stores were broken or malfunctioned (find.pcworld.com/72365). And though Google Wallet can show you when and where you made a purchase, it can't register what you purchased, so you'll still have to keep your receipts.

Of course, these problems aren't insurmountable, and you can bet that developers and phone manufacturers will be working on them in the coming months.

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ON YOUR SIDE

AFTER RECEIVING MY new HP TouchPad (purchased after HP had discontinued the product), I found that the touchscreen didn't respond. I reloaded the OS with WebDoctor and checked for fixes on the Web, but found none. HP said that it could send me a refurbished unit, but that it couldn't send me a new unit like the one I had bought. Five days after I returned my defective unit, I called to check on the status of my refurb, and HP couldn't find my ticket or serial number. It's been a month and I'm still waiting for my unit to arrive from HP customer support. Help!

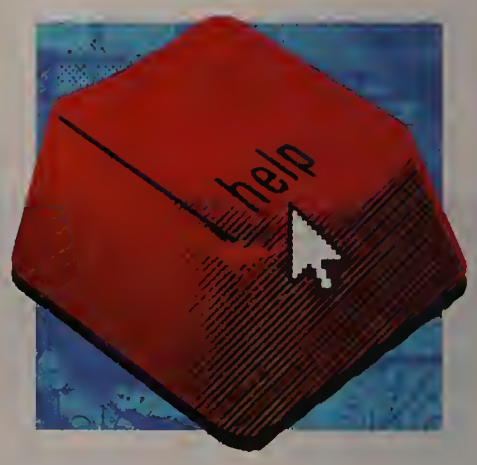
—David Wu, Winnipeg, Manitoba

LEAH YAMSHON

OYS responds: After we contacted an HP public relations representative, the company's customer care department worked directly with Wu to rectify the problem and to supply him with a working TouchPad. HP cited miscommunication between the company's repair depot (where the broken TouchPad had been sent) and its customer care center (which Wu was told to call). The repair depot had indeed received the unit and had recorded the ticket number information. HP acknowledged its error and sent Wu a new TouchPad backed with a year of free service.

Microsoft Support Scam

Donna Davis of Tallahassee, Florida, received a phone call from someone claiming to work for Microsoft, saying that her home PC was sending it error messages indicating the presence of infected files that could damage her hard drive and motherboard. Though Davis's McAfee virus protection software hadn't reported any problems, the technician had Davis run Event Viewer and connected remotely to her PC via Ammyy.com and Support.me. The technician spent 7 hours "cleaning up" the system, and charged Davis $120.



Davis asked us if the call was genuine. Unfortunately, signs point to a scam. The caller's company, Cyber Astro, is not listed as a Microsoft partner. In addition, a forum on Microsoft's official website mentions Ammyy as potentially spreading malicious software. And Microsoft doesn't usually blind-call its customers.

If you get a similar blind call from Microsoft, be very wary—or hang up. Never install or allow any remote access tool from someone unless you are positive of their identity and legitimacy. If you may have fallen victim to a similar scam, we recommend uninstalling any unauthorized software you find on your system and, if possible, doing a full system restore to a point before the date of the call.

Have you run into a problem involving customer service, a warranty, a rebate, or the like for your tech gear? E-mail us at onyourside@pcworld.com. ●

ILLUSTRATION: GARY NEILL

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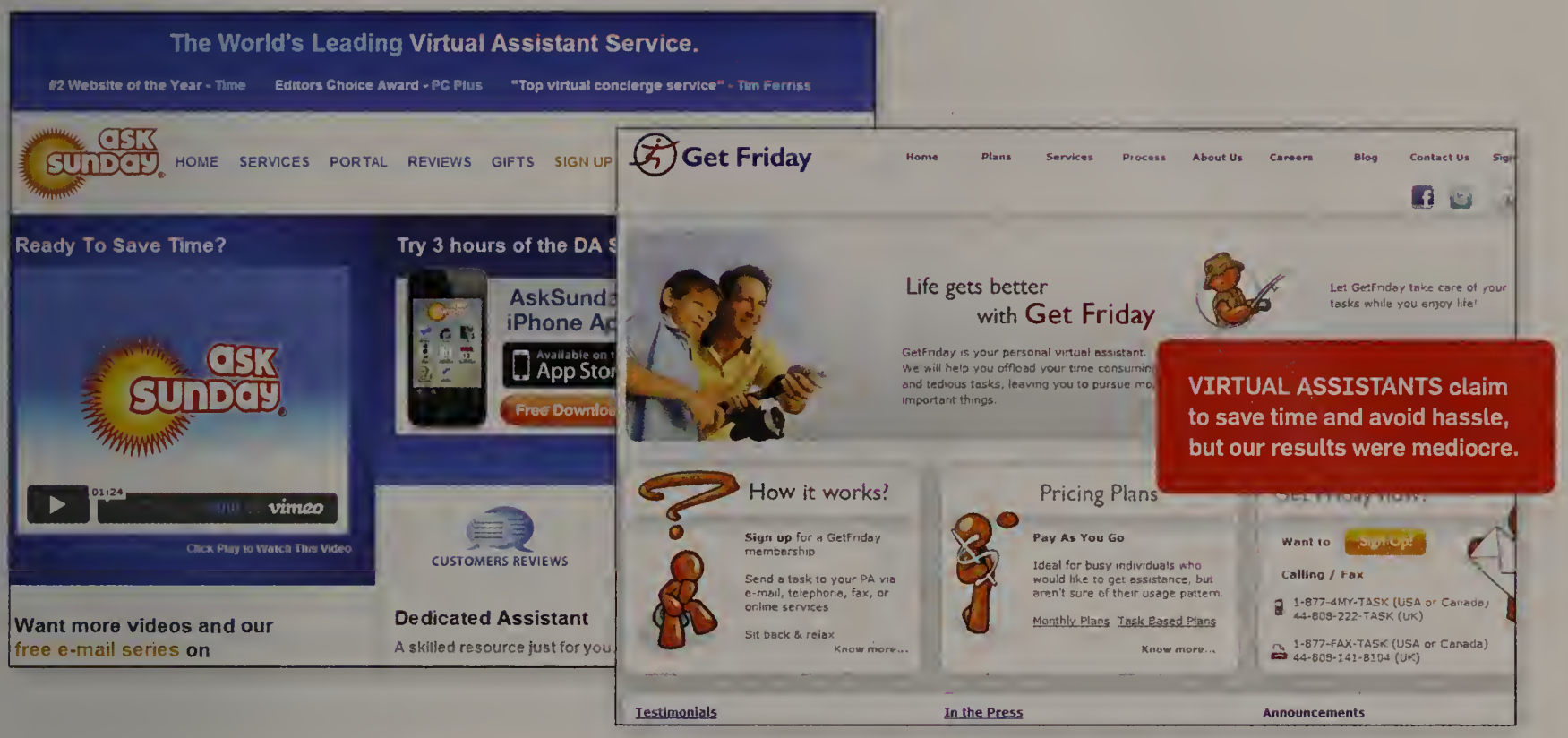


Virtual Assistants: Barely Helpful

Low-priced labor is available online, but is it worthwhile? We tried four such services.

BY CHRISTOPHER NULL

VIRTUAL ASSISTANTS LET you outsource tedious tasks overseas. We gave four services three tests: 1) convert an Excel spreadsheet to Google Docs, 2) create a Tokyo trip itinerary (with a gluten-free dining option), and 3) research e-commerce Web hosting. (For full details, see find.pcworld.com/72354.)

AskSunday

Within half an hour of our signing up online with AskSunday (plans vary; on-demand service costs $3 per week plus $12 per hour), our India-based assistant Felcy called.

AskSunday was responsive, and it did the best work of the four services on the Excel project, improving the chart's legibility. The next day, when we expected our Tokyo trip plan, we instead received a list of attorneys meant for "David." We were shocked that this could happen—and that we were billed for this job. The Tokyo results, when they arrived, were uneven: AskSunday listed six budget hotels with rates, plus four URLs to Tokyo tour operations. Felcy named ten restaurants, but said she could find no information about gluten-free choices.

BPOVIA

Based in China, BPOVIA is the priciest of the services we tried (the cheapest plan is $120 for 10 hours, with $15 per hour of overage). We had to pay via PayPal, and the service emailed the password to us in plain text, but our assistant Cici started for us almost immediately after we paid the fee.

We were particularly impressed with Cici's work on our Tokyo trip plan. The results included a detailed hotel guide (rates, amenities, pros/cons) and a discussion of what we could eat and not eat, reflecting a deep understanding of the gluten issue. »

Results	ask SUNDAY	BPOVIA	Get Friday	TimeSvr
What we paid	$51 ($3 per week plus $12 per hour)	$120 for 10 hours	$36.80 ($13 per hour)	$0 (work completed during three-day free trial)
Assistant's location	India	China	India	Singapore
Spreadsheet task	Thoughtfully done	Completed quickly	Bare minimum	Not shared securely
Travel task	Hit and miss; privacy slip-up	Impressive	Pleasing overall	Disastrous (and hilarious)

Unfortunately, BPOVIA billed us for another $120, after confirming cancellation of our service weeks earlier. We successfully challenged the extra fee with PayPal, but BPOVIA did not respond to inquiries about the billing.

GetFriday

GetFriday (plans vary, overages and weekend surcharges apply; seven-day free trial), was the slowest at delivering its work to us—and for the most part its results were middling.

Setup required telephone verification, a faxed contract, and days of waiting. After that, we received multiple phone calls and copious email follow-ups from the India-based company.

The Tokyo trip planning was generally pleasing. For example, the data on hotels (largely luxury chains) included a spreadsheet of addresses and phone numbers. But the restaurant planning fell flat: Our assistant Alex simply checked with each of the hotels to see if they had gluten-free food (still, he called most of them, which no other service did), and he didn't offer any additional restaurant recommendations.

TimeSvr

Starting up with the Singapore-based TimeSvr, which costs just $69 a month, is fast and easy. Different people handled our tasks, and they performed them expeditiously, too—but the quality of the work was substandard.

Our assistant performed the Excel task, but shared it with the wrong email address, giving a stranger access to what might have been sensitive material. As for the Tokyo trip itinerary, the food options included a bizarre chart of U.S. fast-food restaurants graded by flavor, service, environment, and "contamination risk," as well as a line of gluten-free Indian frozen dinners.

The only good news: TimeSvr's staff worked so fast that they did all our tasks within its three-day free trial period.

SIMPLY BUSINESS

Make Your iPad a PowerPoint Presenter

RICK BROIDA

SlideShark converts presentations for showing on your iPad or on a projector.

IF YOU FREQUENTLY make presentations, you know what a time sink it can be to work with PowerPoint on a laptop. You have to connect a projector, wait for the PC to boot, run PowerPoint, load your slide deck, switch the laptop's video output to projector mode, and on and on. You can easily blow 10 to 20 minutes just setting up your presentation.

Enter the SlideShark (www.slideshark.com) iPad app. Actually, it's both an app and a service, and it's free—for a starter account, anyway. After signing up and installing the app, you upload your slide decks (SlideShark supports both .ppt and .pptx files) and then wait a few minutes while the service optimizes them for iPad viewing. Afterward, you fire up the app and choose presentations to download. I think it's smart that SlideShark stores the converted presentations on your iPad so you can run them offline (that is, no Internet connection required).

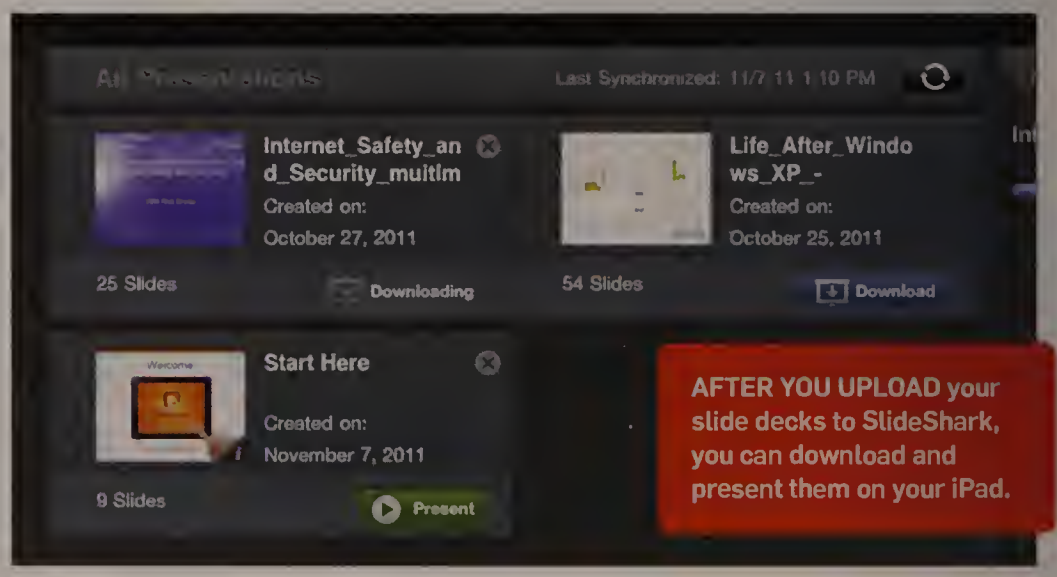
Quick Conversion, Static Slides

You can view slideshows on the iPad, tapping or swiping through slides, but you may also connect the iPad to a TV or projector (via Apple's $29 VGA Adapter).

You'll encounter a few limitations. For starters, SlideShark doesn't support hyperlinks, embedded videos, slide transitions, and other fancy effects, so you're stuck with fairly static slides (which is not necessarily a bad thing). The app does promise to preserve all fonts, images, and colors, plus some animations.

In my tests, SlideShark did a great job converting most of my presentations. On one presentation with a custom, wider-than-usual page layout, however, the converter failed to maintain the aspect ratio, leading to squished-looking slides with jumbled, overlapping text. Your mileage may vary, but be sure to spot-check any important presentations before actually, you know, presenting them.

Countless apps let you show slides on an iPad. But SlideShark is free and easy to use. It's worth a try if you'd rather travel with a slim tablet than a bulky laptop.



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TECH AUDIT

Six Reasons to Use Cloud Services for Small Business

LOGAN G. HARBAUGH

OUTSOURCING IT FUNCTIONS such as payroll, website hosting, email, and enterprise resource planning has long been normal for businesses of all sizes. But outsourcing critical functions—such as database and file servers, application development, and document storage—gives many organizations pause. Experienced IT admins point to recent well-publicized outages, data losses, and hacking incidents that have cost companies big in lost productivity, lawsuits, penalties, and even bankruptcy. Nevertheless, your business could benefit significantly from using cloud services. Here are the main savings and advantages.

1 You'll save on infrastructure: Considering that the cost of buying one server with an operating system and applications for in-house use can range from a couple of thousand to tens of thousands of dollars, paying a monthly fee to a cloud provider instead can be a huge benefit—especially if you want to test a new service before a full implementation.

2 You'll save on setup and management: If your IT staff is unfamiliar with a new operating system or application, implementing a new function can be a long, arduous process. Cloud providers have knowledgeable, experienced administrators who support specific applications. This is one of the reasons for the popularity of cloud-based ERP services, which are notoriously difficult to set up, both in getting hardware and software modules to work together and in configuring the software properly. And for cloud providers with enough experienced staff, routine chores such as monitoring, setting up new accounts, and applying patches are no problem.

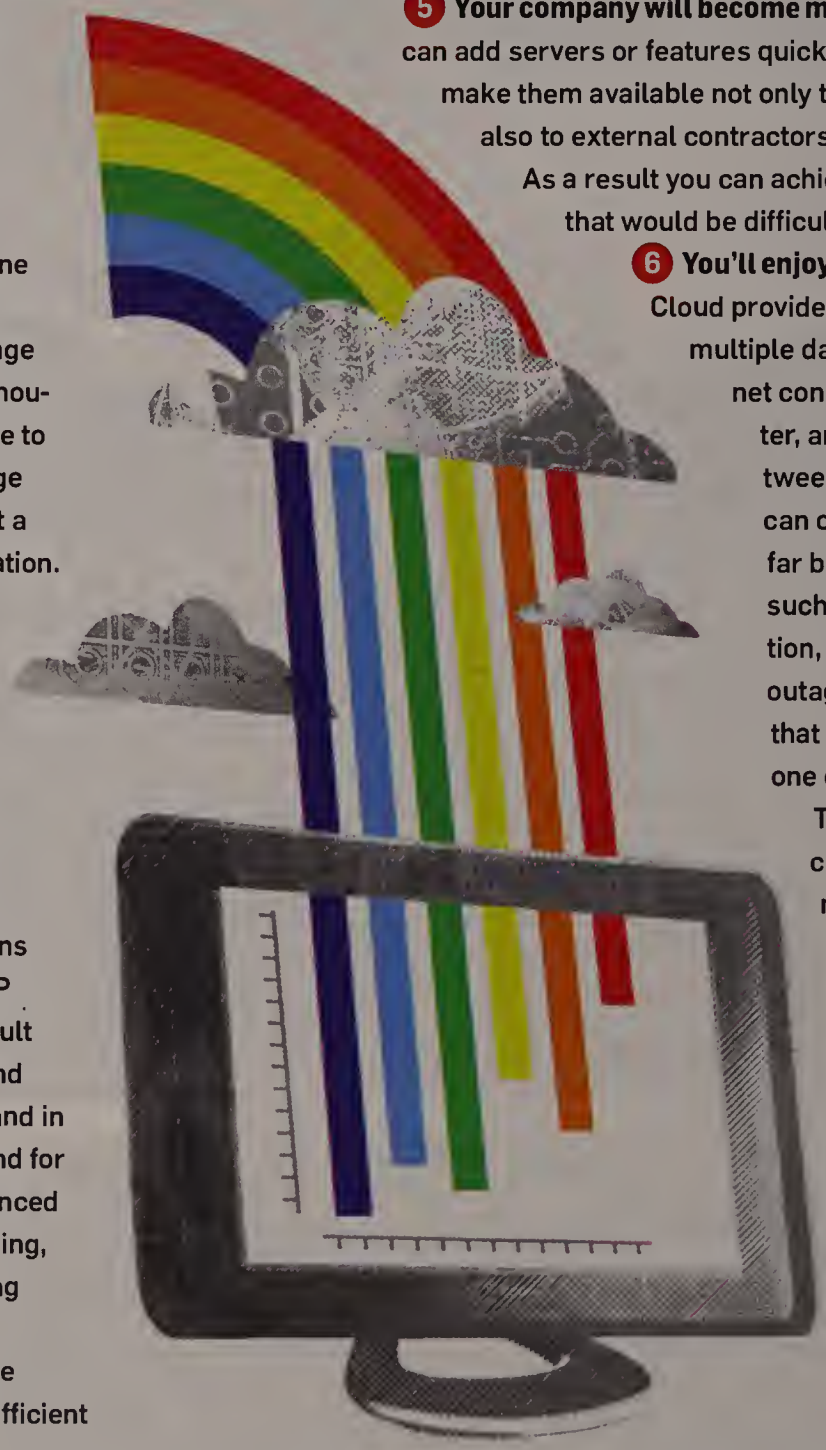
3 You'll save on utilities: Because cloud providers use large, modern, efficient data centers, and because they share infrastructure among multiple companies, their costs to run the small part of the center you're using are much lower than your costs would be for a (likely underutilized) server in your own data center.

4 You'll get better performance and more features: Cloud providers buy and operate systems whose performance level greatly exceeds anything that a small company can afford to run internally. Typically they have the most capable versions of software and site licenses, too, so they have access to the latest features at much lower costs than you'd be able to get in-house. And their administrators are more likely to know how to optimize performance than your company's staff is.

5 Your company will become more agile: Cloud providers can add servers or features quickly and easily, and they can make them available not only to your internal users but also to external contractors, partners, and customers. As a result you can achieve degrees of flexibility that would be difficult or impossible internally.

6 You'll enjoy more fault tolerance: Cloud providers can afford to maintain multiple data centers, multiple Internet connections at each data center, and replication of data between data centers. Plus, they can offer advanced protection far beyond nightly backups, such as continuous data protection, generators to handle power outages, and high-end servers that can keep running even if one component fails.

The savings and benefits of cloud services can be dramatic. Just keep in mind that you still risk losing data and experiencing a disruption of your business if the cloud provider has problems. You can offset that risk, however, by adding fault-tolerant options through the cloud provider itself or by directing that service to back up your data to another provider. ●



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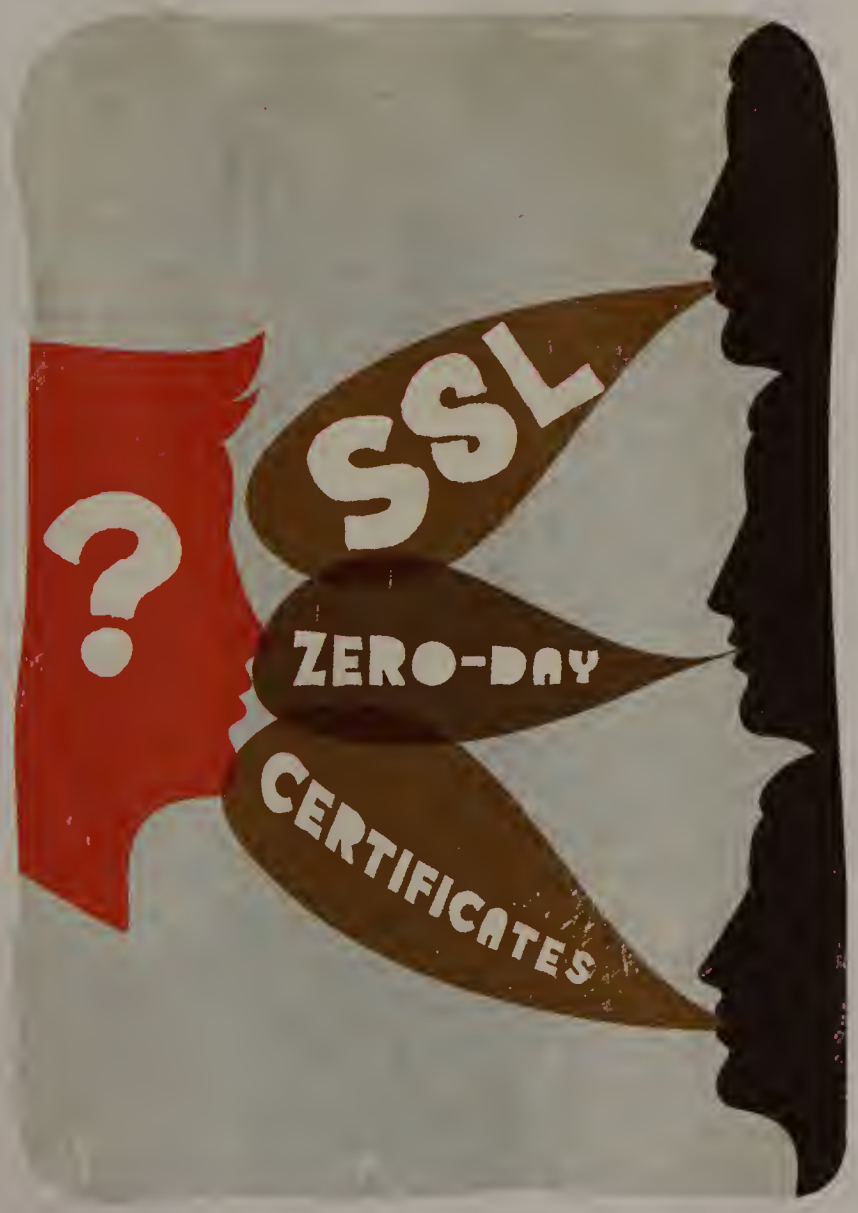
Do You Speak Securitese?

BY NICK MEDIATI



LIKE MANY OTHER topics we cover here at *PCWorld*, security has a language of its own. Listening to a group of security experts carry on a conversation, for instance, can be a frustrating experience for mere mortals. And sometimes, technical jargon seeps into everyday security news. Knowing what the following five key security terms mean, however, can help you stay better informed about the threats around you.

Zero-day: You may occasionally hear software companies talk about "zero-day" flaws or exploits. The expression "zero-day" refers to any newly discovered software security flaw that has yet to be fixed by the software's maker.

While conventional wisdom suggests that zero-day threats are something you should be seriously concerned about, not everyone is convinced: A recent report from Microsoft shows that very few major security threats actually take advantage of zero-day flaws (find.pcworld.com/72386). Still, you should keep your software up-to-date.

> Knowing these terms won't make you a security expert—but they'll provide a good head start on the jargon.

Remote code execution: This is another term that comes up often in security-update talk. Here's an excerpt from the release notes for Microsoft's October Patch Tuesday update (find.pcworld.com/72387): "The most severe vulnerabilities could allow remote code execution if a user views a specially crafted Web page using Internet Explorer."

"Remote code execution" is a fancy way of saying that a cybercriminal could use a vulnerability to gain access to your computer from afar and run malware on it. Malware attacks that rely on remote code execution typically prey on bugs in Web browsers, image viewer applications, video and music players, PDF viewers, and so on.

As the Microsoft quote suggests, these bugs are usually triggered by Web pages (and image or video files) that criminals have specifically doctored to exploit a flaw. This is why you should avoid clicking links or opening email attachments that you weren't expecting, even if that attachment is an image file or a PDF.

Sandboxing: One way to help protect against remote code execution is to employ sandboxing. This technique isolates apps and other software processes in such a way that, even if attackers figure out a security hole in a piece of software, they can't exploit it to install malware on your computer.

A notable example of software that uses sandboxing is Adobe Reader X: Since crooks commonly install malware on PCs through bugs in how Reader handles PDFs, the addition of sandboxing has greatly improved Reader's security. (See find.pcworld.com/72388 for more details.) Sandboxing won't make software impervious to attack, but the technique will add another layer of security that can thwart many attempts.

SSL: If you've ever visited your bank's website, or have gone shopping on Amazon, you may have noticed that a lock icon appears in your browser's toolbar and that the Web address »

ILLUSTRATION: ANDREW BANNECKER

starts with "https" instead of "http." This is SSL at work. SSL, which stands for Secure Socket Layer, is a way of securing the information being passed back and forth between you and the site you're visiting. SSL encrypts the data as it passes from point to point on the Net, keeping it from prying eyes.

Most websites that handle sensitive information, such as banking and shopping sites, use SSL to keep your private information safe, but sites like Facebook, Gmail, and Twitter also give you the option to use SSL. For other sites, check your account settings to see whether this feature is available.

Certificates: Any website—including malicious ones—can use SSL, so the lock icon in your browser's toolbar by itself does not mean that you're safe.

Enter certificates. Briefly, a certificate is a digital document of sorts—an ID badge—that verifies a site's identity. Certificates are typically issued by organizations called "certificate authorities," and most are "signed," which basically means that the certificate authority was able to verify the identity of the website in question. If a certificate isn't signed, however, your browser will usually pop up a warning about it.

Like everything in security, though, a certificate isn't a sure thing: In September, a hacker claimed to have broken into the computer systems of DigiNotar, a Dutch certificate authority; the breach resulted in the issuance of forged certificates that attackers might use to make malicious sites appear legitimate and secure (find.pcworld.com/72413).

If you want to learn more, security training company SANS offers a comprehensive glossary of security terms at find.pcworld.com/72395. Google's "Good to Know" site (google.com/goodtoknow) is a great place to brush up on basic Internet security. And our Security Alert blog at securityalert.pcworld.com provides ongoing security news and information.

BUGS & FIXES

Patches Galore From Google, Apple

Chrome gets numerous bug fixes. Plus, some updates for Mac OS X users.

JAMES MULROY

THIS GO-AROUND, GOOGLE repaired more than 20 flaws in its Chrome browser (many of them rated critical or high). Apple also released updates to correct issues in iTunes, Mac OS X, and Safari.

Google Chrome's Fixes

The updates to Google Chrome address vulnerabilities that could allow denial-of-service attacks, attacks via JavaScript, or memory corruption, among other things. Google also announced the release of Chrome 15.0.874.102—a more-stable version for Windows, Mac, and Linux—and the Chrome Frame plug-in, which contains a number of improvements.

Altogether, Google repaired 24 vulnerabilities in Chrome. Of these, 1 was rated critical, while 17 were rated high; 2 were medium and 4 were low.

Among the bugs rated high, two, designated CVE-2011-2880 and CVE-2011-2881, affect how Chrome handles hidden objects in a JavaScript engine that compiles JavaScript before running it. These bugs could allow remote attackers to launch a denial-of-service attack or lead to other, as-yet unknown attacks using maliciously crafted JavaScript code.

Chrome will automatically download updates in the background. To learn more about these updates, visit find.pcworld.com/72371 and find.pcworld.com/72372.

Apple's Updates

Apple recently released several updates, including iTunes 10.5, Safari 5.1.1, and Mac OS X Lion 10.7.2. These patches fix vulnerabilities ranging from arbitrary code execution to unexpected application termination.

The iTunes 10.5 updates correct a number of problems in WebKit, the engine for rendering the iTunes store. The updates covering these vulnerabilities are available for Windows 7, Vista, and XP SP2 and later.

The Safari 5.1.1 updates patch flaws that, if exploited, could cause crashes, arbitrary code execution, cross-site scripting attacks, malicious URL tracking of what you click on, and more. Apple also repaired a bug in which arbitrary JavaScript would be executed in Safari extensions if the user happened to visit a malicious website. Safari 5.1.1 is available for Mac OS X 10.6.8 and 10.7.2, OS X Server 10.6.8 and 10.7.2, and Windows XP SP2 and later.

The Mac OS X 10.7.2 update for Lion addresses issues ranging from a flaw in the Application Firewall to some 11 holes in QuickTime that could have led to app crashes, arbitrary code execution, and disclosure of memory contents.

To learn more about Apple's updates—and to download them manually—point your browser to find.pcworld.com/72375.

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Captchas Get Cracked; Spam Bots Inbound

YOU KNOW THOSE annoying boxes of jumbled, multicolored, crossed-out, slanted, or reversed text that you have to read to prove to a website that you're human? They're called captchas—and now that a team of Stanford University researchers has developed a computer program that can often decode them, this security measure may be obsolete.

The researchers—Elie Bursztien, Matthieu Martin, and John Mitchell—developed Decaptcha, which employs a five-stage process.

First, the program preprocesses the image for any noise or obscuring lines; the segmentation stage then separates each of the shapes. Postsegmentation analyzes each shape, the recognition stage approximates a letter to each shape, and in the fifth, final stage, the program runs a spelling check.

The Decaptcha program was able to defeat 66 percent of the captchas on Visa's Authorize.net payment site; 70 percent at Blizzard Entertainment; and a quarter of the ones used by Wikipedia. The system, however, was not able to decrypt a single red and slanted captcha used by Google or ReCaptcha.

Bursztien and Mitchell developed an earlier version of Decaptcha that could decode 50 percent of Microsoft's audio captchas, a pronounced version of the text to help the visually impaired.

The researchers have no plans to release the software, and they explain at length in their paper how captchas could be improved. But if these researchers could crack this antibot system, it is entirely possible that someone less reputable could do so as well—meaning that soon we will once again be inundated with spam and scams.

—Kevin Lee

PRIVACY WATCH

Lock Down Your Wireless Network

ALEX WAWRO

It's a simple process that costs nothing and could save you from a disastrous network breach down the road.

IF YOU HAVE a wireless network at your home or business, you must protect it against opportunistic hackers seeking to steal your data or hijack your Wi-Fi. We asked Steven Andrés, chief technology officer of security consulting firm Special Ops Security, about the best ways to lock down Wi-Fi.

To get started, you will need to log in to your router's administrative console by typing the router's IP address into your Web browser's address bar. Most routers use an address such as 192.168.1.1, though alternatives like 192.168.0.1 and 192.168.2.1 are also common. Check your router's manual to determine the correct IP address, or locate it on the manufacturer's website.

Change Your Passwords

The first step is simple: Change your passwords! Default router passwords like "admin" are seductively simple to remember, but that means they're equally simple for a hacker to guess. You can build a better password by combining numbers and letters into a complex string. Remember to change both your Wi-Fi password (which guests must type in to access your network) and your router administrator password (for logging in to the admin console). Andrés suggests changing the passwords to something unique—no pet names—then writing them down on a piece of paper and taping it to the router for safekeeping.

Change Your SSID

Every wireless network has a name, known as a Service Set ID (or SSID). Simply changing that name discourages serial hackers from targeting you—wireless networks with default names like "linksys" are more likely to lack custom passwords or encryption. You could also disable SSID broadcasting, but that step may not be worth the bother: Any hacker with a wireless-spectrum scanner can still find your SSID by listening in as your devices communicate with your router.

Enable WPA2 Encryption

If possible, always encrypt your network traffic using WPA2 encryption, which offers better security than the older WEP and WPA technologies. In choosing between versions of WPA2—such as WPA2 Personal or WPA2 Enterprise—pick the one most appropriate for your network. Unless you're setting up a large-scale business network with a RADIUS server, stick with WPA2 Personal encryption.

For more tips on network security, browse to find.pcworld.com/72367.

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Reviews & Rankings

Record Cable TV on Your PC

Is your DVR overloaded? Use your PC to record shows. You can store as many as you wish and watch them on anything—including your TV, phone, and tablet.

WANT TO TURN your Windows 7 PC into a killer DVR that has potentially limitless storage and requires no monthly fees? Three new products will pipe your high-definition cable TV signals into your PC without even requiring you to open the computer's case.

When you use your PC to record shows, you can do what you want with them. If you wish to keep shows forever, you can. If you prefer to watch them on a phone or tablet, converting them is easy. And with (in most cases) an HDMI cable, you can watch them on your TV.

The three products I tried each use a CableCard TV tuner from a cable provider. All of them are external devices that promise plug-and-play simplicity.

Two models require a USB port, while the third connects to a home router, allowing you to use it with more than one PC. They're excellent products, one and all, sporting multiple digital tuners for your multichannel viewing and recording pleasure. All support SDV (Switched Digital Video), a bandwidth-saving technology that cable providers increasingly use. And each records digital, HD, and premium channels, but not on-demand or pay-per-view programming.

Before you buy, however, call your cable provider and

◀ MICROSOFT'S WINDOWS Media Center offers a program guide and manages recorded shows.

PHOTOGRAPHS: ROBERT CAROIN

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make sure that it can give you a multistream (aka M-Card) CableCard. I ran my tests with a Comcast M-Card, which worked beautifully with all three boxes.

Likewise, check your PC's specs. At a minimum, your system should have a dual-core CPU, 3GB of RAM, and a DVI or HDMI connection to the display you wish to use. You also need a graphics card that supports HDCP copy-protected content. The Digital Cable Advisor in Windows Media Center's Extras Gallery will tell you in advance if your PC has sufficient horsepower for this amazing extension of your HDTV.

Ceton InfiniTV 4 USB

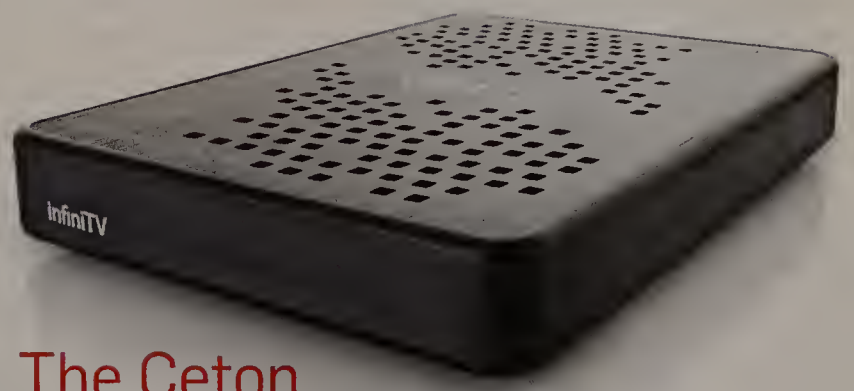
For over a year I've been enjoying the internal version of the Ceton InfiniTV 4—an almost flawless TV-tuner card marred only by its need for a PCI slot. Its new USB sibling, aptly named the InfiniTV 4 USB ($299), brings the same four-tuner goodness to laptops, slot-challenged desktops, and pretty much every other PC. True, you can get the same kind of universal compatibility from the Hauppauge, but that box has only two tuners.

Ceton's setup instructions are straightforward. After sliding your CableCard into the back of the unit and connecting the coax cable, you plug the InfiniTV into a USB port on your PC. Then you download Ceton's installation utility (a minor hassle; whatever happened to software CDs?) and run through Windows Media Center's regular TV-signal setup. On my HP desktop, all of these steps came off without a hitch; I was watching and recording shows inside of 15 minutes (not including a CableCard activation call to Comcast, which I'd done previously).

The analog PC-TV tuners of the past limited you to standard-definition broadcasts, while most modern digital tuners can pull down only over-the-air channels.

MORE ONLINE

For complete reviews of the CableCard tuners we tested for this story, go online to find.pcworld.com/72406.



The Ceton InfiniTV 4 USB CableCard TV-tuner box supports digital, high-definition signals on regular and premium channels alike—and it can handle four of them simultaneously.

The InfiniTV 4 USB, like Hauppauge's adapter and the SiliconDust HDHomeRun Prime, supports digital, high-definition signals on regular and premium channels alike—but it can handle four of them simultaneously.

That sounds as if it would require considerable PC power, and perhaps more bandwidth than a USB 2.0 port could handle. My aforementioned HP machine sports a quad-core CPU and 6GB of RAM (far beyond Ceton's minimum recommended requirements), and it barely broke a sweat when recording four channels at once. And judging from what I saw of those recordings, USB has no difficulty accommodating four streams' worth of HD video. Everything looked crisp and smooth, without a hint of image degradation.

More good news: The box had no trouble "surviving" sleep mode, which sometimes wreaks havoc with USB devices. Upon waking from standby, my HP PC reconnected to the InfiniTV 4 USB without incident.

Although the InfiniTV 4 USB plugs into a single PC, it can share its tuners with other Windows 7 systems in your house—so long as the host PC has a wired ethernet connection to your router and remains on around the clock. (If those are deal- »

breakers, check out the SiliconDust device, which plugs directly into a router.)

One thing to keep in mind: With this setup, you're not actually "sharing" the tuners so much as diverting one or more to other computers. Once you've designated, say, two tuners for sharing, that leaves only two tuners available for the host system (though you can always undo the arrangement if you desire). In addition, on my fairly mainstream HP desktop, the default network card drivers weren't "stable" enough (according to Ceton) for good-quality sharing, so I wasn't able to put sharing to the test. If you want to purchase the InfiniTV 4 USB, and you intend to share tuners, be sure to check with Ceton's tech support first to confirm that your host system earns a passing grade.

Hauppauge WinTV-DVR-2650

The bargain of the CableCard TV tuner bunch, the Hauppauge WinTV-DVR-2650 costs just $149—half the price of the Ceton device and $100 less than the SiliconDust product. What's the catch? It offers just two tuners, versus four and three from its rivals, respectively. Still, you won't find a cheaper way to bring digital high-definition cable to your PC. And you know what else has a mere two tuners? Virtually every TiVo model ever made.

In other words, if you're not a hard-core couch potato, two tuners might be enough. With the WinTV-DVR-2650, you can record a pair of shows at once while watching a third, recorded show.

The adapter is about the size of a small paperback book, with LEDs in the front indicating power, cable connectivity, and tuner activity.

If you're not a hard-core couch potato, two tuners might be enough. Through Hauppauge's WinTV-DVR-2650, you can record a pair of shows at once while watching a third, recorded show.

It's an easy fit alongside any TV or squeezed into an entertainment center, though the ultrabright LEDs can be distracting in a dark room.

You wouldn't know to look at it, but the WinTV-DVR-2650 is actually made by SiliconDust. This becomes evident the moment you install its software (supplied on CD), which has the SiliconDust name—not Hauppauge—all over it. In fact, the installation and configuration process is identical to that of the HDHomeRun Prime, fast and fairly painless.

However, while Hauppauge's instruction guide walks you through all the parts involving Windows Media Center, it doesn't say anything about using SiliconDust's setup utility, which requires a one-time configuration. The process isn't difficult, but novice users may find one or two of the steps confusing, such as the one where you select the 'source type' for the detected tuners. (Hint: It's 'CableCARD'.)

In my tests, the WinTV-DVR-2650 worked perfectly. Both live and recorded shows looked great, and I had no trouble tuning in standard-def, high-def, or premium channels. Just as important, my PC didn't balk at reestablishing communications with the box after waking from sleep mode.

SiliconDust HDHomeRun Prime HDHR3-CC

Why limit your recording and viewing pleasure to just one machine? The SiliconDust HDHomeRun Prime HDHR3-CC easily plugs into a home router, so any Windows 7 system (or iPad tablet) connected to the network can view or record digital high-definition channels.

The $250 HDHR3-CC is a three-tuner adapter, providing one more tuner than Hauppauge's product and one fewer than Ceton's device. SiliconDust also sells a six-tuner model, the HDHR3-6CC-3X2, for $500.

Once you've obtained an M-Card CableCard from your cable company, you just ease it into the back of the HDHR3-CC, connect the coax cable to the box, and then plug the whole shebang into an available ethernet port on your router.

Next, head to your PC and download the company's HDHomeRun Software (SiliconDust doesn't provide a CD in the package). The software is fairly easy to set up, though some additional direction would be helpful for novices. The last step is to run the standard CableCard setup in Windows Media Center; at least that part is illustrated in the accompanying quick-start guide.

Because high-definition video requires a lot of band-

PHOTOGRAPHS: ROBERT CARDIN

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width, SiliconDust recommends using a wired connection between your computer(s) and the router. Of course, that isn't always practical, so I tested the tuners with both wired and Wi-Fi configurations. The bottom line: A wired arrangement does indeed work better, but I also had good luck on the wireless front—so long as I kept the computers in relatively close proximity to my router. Two floors away, I found, the signal was weak enough that the video skipped heavily.

Since the HDHomeRun Prime HDHR3-CC from SiliconDust plugs into a home router, any Windows 7 PC (or iPad) connected to the network can view or record digital HD channels.

The HDHR3-CC worked like a champ—with my PCs. With my iPad, things took a turn for the disappointing. For starters, Elgato Systems' HDHomeRun app costs $18. It can tune in only SD channels, not HD ones. And although the app offers basic DVR functions such as pause, rewind, and quick-skip, you can't schedule recordings or use more than one tuner at a time. Even worse, in my tests, live TV suffered from bursts of pixelation and frequent interruptions, even when I had my iPad in the same room as the router. I was rarely able to enjoy the TV quality.

Taking the iPad out of the equation, however, the SiliconDust HDHomeRun Prime HDHR3-CC offers excellent three-tuner performance for multiple-PC households.

—Rick Broida

★★★★½ **SUPERIOR**

InfiniTV 4 USB | Ceton

Outdoes other CableCard adapters by having four digital tuners.

List: $299

find.pcworld.com/72407

★★★★ **VERY GOOD**

WinTV-DVR-2650 | Hauppauge

For a price that's hard to beat, this capable box offers two HD tuners.

List: $149

find.pcworld.com/72408

★★★★ **VERY GOOD**

HDHomeRun Prime HDHR3-CC
SiliconDust

The best option for sharing a TV tuner among multiple PCs.

List: $250

find.pcworld.com/72409

Adapter Turns an HDTV Into a Second Monitor

MOST NEW PCs have HDMI ports for sending high-def video to HDTVs, but a few years ago that wasn't the case. The $60 Cirago USB to HDMI Display Adapter solves the problem for older PCs by linking an HDTV to a computer through a USB 2.0 port instead of a graphics card. However, the video quality isn't always perfect because of the DisplayLink compression required to meet USB 2.0's bandwidth limitations.

The adapter accepts both a standard USB cable (Cirago includes one in the package) and an HDMI cable (not included). Cirago also adds an HDMI-to-DVI adapter for users who need DVI support.

Once I plugged the other end of the USB cable into a Windows 7 PC, the driver and software installed automatically. (Drivers for older Windows versions and for Mac OS are on an included CD.)

The driver creates a virtual second monitor in Windows' display properties. You can make further refinements using the DisplayLink software. I used the software's 'Fit to TV' function, which scaled my Windows 7 desktop to fit the set's screen. The default dimensions worked perfectly with my 1080p Panasonic plasma TV.

The 'Optimize for Video' feature is meant to improve video quality within USB's bandwidth constraints. But in my tests using TV shows in iTunes, the video and audio sometimes froze briefly, and the image on the TV was not as crisp and clear as the PC video. However, the device did automatically send the audio stream with the video.

—Yardena Arar

★★★½☆ **GOOD**

USB to HDMI Display Adapter
Cirago

Device is easy to use, but makes video-quality compromises.

List: $60

find.pcworld.com/72405

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Wireless USB PC to TV Audio/Video Display Adapter	1440x900	720p	x	x		x		x
StreomHD VE Edition Wireless PC to TV Display Adapter	1920x1080	1080p	x			x		
StreomHD Wireless PC to TV Display Adapter	1920x1080	1080p	x			x	x	x
ConnectHD Wireless Video Conferencing with PC to TV Streaming	1920x1080	1080p	x		x	x		

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Nero 11 Gets a Makeover

LONG A POWERFUL suite for creating, editing, transcoding, and burning video and photo slideshow discs, plus editing audio and doing backups, Nero's latest release improves several major components and links them via a new media-file browser.

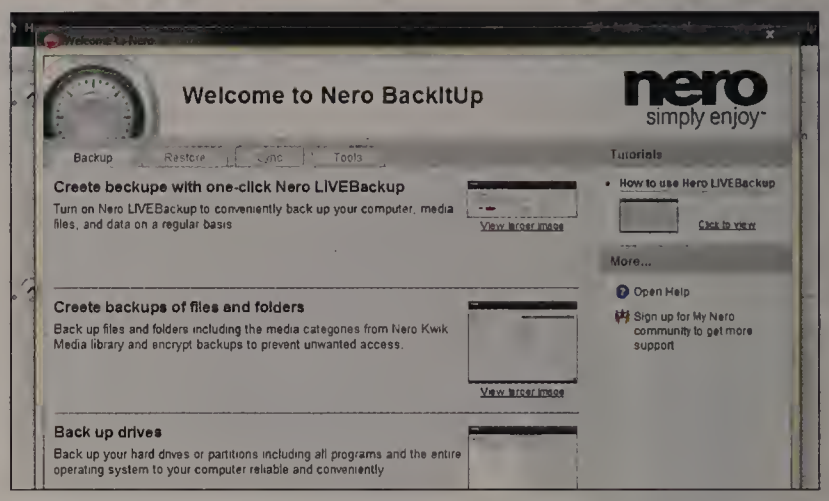
The $100 Nero 11 has support for AMD, Nvidia, and Intel hardware GPU video-encoding acceleration, and it adds a Time Machine–like backup function.

In my hands-on, Nero 11 installed without a hitch, though I had a couple of issues with its desktop icons.

Updated with a modern look and feel are the capable Nero Video editor, Kwik Media (a Windows Media Player–like module), BackItUp, and the Recode CD/DVD ripper and transcoder. The look is friendly, classy, and far more intuitive, with better workflow and an easier learning curve. But not all components have these changes.

Nero 11 offers a lot of bang for the buck, but other applications now do most of the same things. The $129 Platinum version of Nero 11 yields the most value, because of its comprehensive Blu-ray support (aside from 3D).

—Jon L. Jacobi



NERO 11'S BACKUP module has an attractive, modernized look.

★★★½ VERY GOOD

Nero 11 | Nero

Easier-to-use media creation/editing suite continues to improve.

List: $100 (Platinum, $129)

find.pcworld.com/72422

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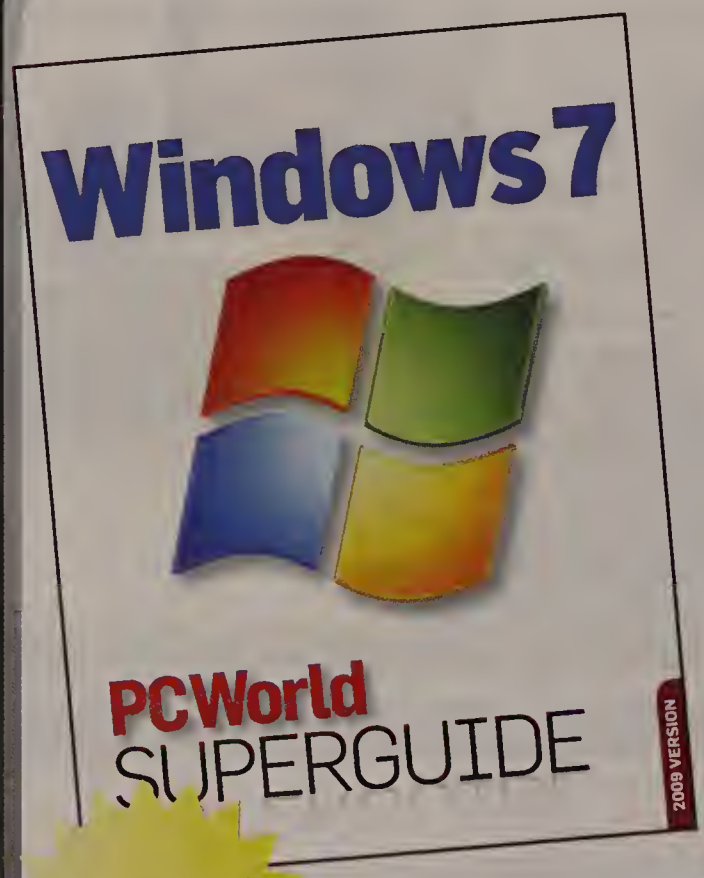

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Harmony Link Turns Mobile Devices Into Remotes

WITH THE HARMONY Link, a $100 base station that works with free iOS and Android apps as well as a Wi-Fi network, Logitech allows your mobile device to do everything a conventional high-end remote can do and then some. But for the Link to be a truly satisfactory alternative to a hardware remote, its software needs improvement.

LOGITECH'S HARMONY LINK.

Black, shiny, and shaped like a compact, 6-inch flying saucer, the Harmony Link hardware takes about half an hour or more to set up, depending on how many devices it will control. For setup, Logitech provides a small printed booklet with pretty good instructions.

After setup, I installed the Harmony software for my iPhone and iPad, logged in to MyHarmony, and synced the app with my account. With that, the Link was ready.

But the Link's handling of some remote-control functions was problematic: I had issues with navigation, and some behavior I saw (such as confusion between my home theater components) was puzzling or frustrating.

The Harmony Link has the potential to turn iOS and Android devices into great universal remotes; however, until it can better match how users interact with the components of their system, it's not a good substitute for hardware remotes that let you exercise finer control.

—Yardena Arar

★★★☆☆ **GOOD**

Harmony Link | Logitech

Base station has great potential, but the software needs work.

List: $100

find.pcworld.com/72389

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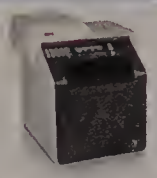
1	 BEST BUY Brother MFC-9970CDW $700 find.pcworld.com/71935	★★★½☆ VERY GOOD	• Text quality: Superior • Photo quality: Good • Tested speed (ppm): 15.7 text/3.2 photo	• USB, ethernet, wireless connectivity • 300-sheet standard input, automatic duplexing • Average toner cost per page (editorial research): 1.9 cents black, 12.7 cents for all four colors
	▸ A 5-inch color touchscreen enhances this small-office/workgroup machine. It's also fast, and it has Wi-Fi and inexpensive toner.			
2	Brother MFC-9560CDW $650 find.pcworld.com/71936	★★★½☆ VERY GOOD	• Text quality: Superior • Photo quality: Good • Tested speed (ppm): 15.0 text/3.0 photo	• USB, ethernet, wireless connectivity • 300-sheet standard input, automatic duplexing • Average toner cost per page (editorial research): 1.9 cents black, 12.7 cents for all four colors
	▸ Speed, economical toner, and Wi-Fi are the highlights of this small-office and workgroup model. The photo quality is acceptable.			
3	Lexmark X548dte $1749 find.pcworld.com/71937	★★★½☆ VERY GOOD	• Text quality: Superior • Photo quality: Good • Tested speed (ppm): 14.5 text/2.5 photo	• USB, ethernet connectivity • 900-sheet standard input, automatic duplexing • Lowest vendor-specified toner cost per page: 1.7 cents black, 11.9 cents for all four colors
	▸ This heavy-duty model has speed and paper capacity to spare, but only its extra-high-yield replacement toner is a good deal.			
4	Samsung CLX-6220FX $699 find.pcworld.com/70869	★★★½☆ VERY GOOD	• Text quality: Superior • Photo quality: Good • Tested speed (ppm): 11.5 text/3.1 photo	• USB, ethernet connectivity • 350-sheet standard input, automatic duplexing • Lowest vendor-specified toner cost per page: 2.4 cents black, 12.9 cents for all four colors
	▸ Small workgroups will like this color MFP's features and print quality, which balance out its middling performance and toner costs.			
5	Canon ImageClass MF8380Cdw $599 NEW find.pcworld.com/72351	★★★☆☆ GOOD	• Text quality: Superior • Photo quality: Good • Tested speed (ppm): 11.1 text/3.3 photo	• USB, ethernet, wireless connectivity • 300-sheet standard input, automatic duplexing • Lowest vendor-specified toner cost per page: 3.7 cents black, 16.4 cents for all four colors
	▸ Photos that print quickly and look good are a strong point, but the pricey black toner could strain small-office budgets.			
6	Oki MC561 Color MFP $749 find.pcworld.com/71938	★★★☆☆ GOOD	• Text quality: Superior • Photo quality: Fair • Tested speed (ppm): 17.6 text/2.6 photo	• USB, ethernet connectivity • 350-sheet standard input, automatic duplexing • Lowest vendor-specified toner cost per page: 2.1 cents black, 14.8 cents for all four colors
	▸ This model scores with its speed, paper handling, and reasonably priced toner; its graphics quality, however, is only so-so.			
7	Oki MC361 Color MFP $549 find.pcworld.com/71939	★★★☆☆ GOOD	• Text quality: Superior • Photo quality: Fair • Tested speed (ppm): 15.1 text/2.5 photo	• USB, ethernet connectivity • 350-sheet standard input, automatic duplexing • Lowest vendor-specified toner cost per page: 2.8 cents black, 17.4 cents for all four colors
	▸ You get good speed and paper handling for the price, but the MC361's color quality and color toner costs are disappointing.			
8	Canon Color ImageClass MF9220Cdn $999 find.pcworld.com/71551	★★★☆☆ GOOD	• Text quality: Superior • Photo quality: Fair • Tested speed (ppm): 12.8 text/3.5 photo	• USB, ethernet connectivity • 350-sheet standard input, automatic duplexing • Average toner cost per page (editorial research): 2.0 cents black, 10.2 cents all four colors
	▸ Canon's big MFP has many small problems, such as complex controls, minimal Mac support, and mediocre photos. Toner costs seem low.			
9	Xerox WorkCentre 6505/DN $749 find.pcworld.com/71940	★★★☆☆ GOOD	• Text quality: Superior • Photo quality: Good • Tested speed (ppm): 15.1 text/2.0 photo	• USB, ethernet connectivity • 250-sheet standard input, automatic duplexing • Lowest vendor-specified toner cost per page: 3.5 cents black, 16.7 cents for all four colors
	▸ This workgroup model offers good speed and print quality; its talents, however, are overshadowed by its expensive toner.			
10	Dell 1355cnw $340 find.pcworld.com/71552	★★★☆☆ GOOD	• Text quality: Superior • Photo quality: Good • Tested speed (ppm): 11.1 text/1.4 photo	• USB, ethernet, wireless connectivity • 160-sheet standard input, manual duplexing • Lowest vendor-specified toner cost per page: 3.5 cents black, 18.5 cents for all four colors
	▸ Best suited for small, low-volume offices, this unit offers versatile connectivity, but it has limited features and expensive toner.			

CHART NOTES: Ratings are as of 10/25/11. Output speeds are in pages per minute (ppm).

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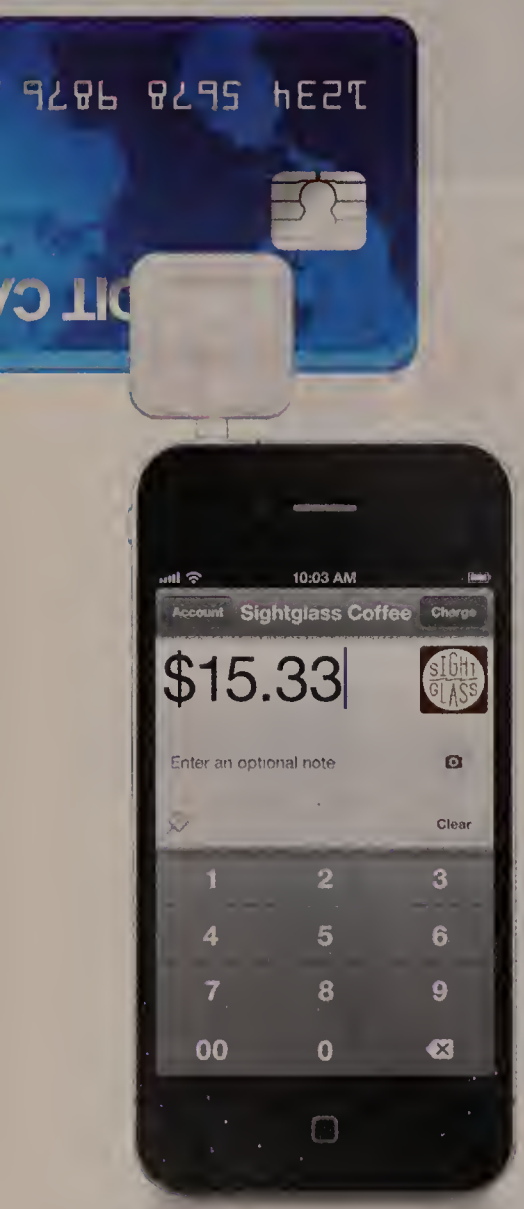
Square vs. Intuit: Two Mobile Credit Card Scanners

WANT TO ACCEPT a credit card payment directly on your smartphone? Square and Intuit are offering competing, and slightly differing, schemes to do so. When you set up an account with either plan, you receive a credit card scanner for free.

Each service offers apps for iOS (iPhone, iPod Touch, and iPad) and for Android. Intuit's GoPayment also supports some BlackBerry phones. The scanners plug into the headphone port.

Each service is easy to set up and has a simple fixed-percentage fee with no separate transaction fee.



▲ SQUARE'S COMPACT CARD scanner can be difficult to keep steady during a swipe.

Square Card Reader

Square's reader is sturdy but small, about the size of a quarter. Holding it steady while swiping can be hard, though, and it took several swipes to read some cards.

The reader works on Apple iOS devices running 4.0 and later and on Android devices running 2.1 and later. You must plug it directly in the 3.5mm headphone jack (you can't run it via an adapter).

Signing up for the Square reader was fast and easy. The company requires only an email address, a password, and an address to which to send the reader.

Square will automatically deposit transactions each evening. The fee schedule is simple. For each swipe, the charge is a flat 2.75 percent; no transaction fee. If you manually enter the numbers, it will be 3.5 percent with a transaction fee of 15 cents.

Square's iPad app takes advantage of that device's larger screen, though it runs only in portrait mode. Square keeps track of your items available for sale, to which you can add pictures, descriptions, and prices.

★★★★ VERY GOOD

Square Card Reader | Square

A convenient way to take credit card payments on the go.

List: 2.75% charge per swipe

find.pcworld.com/72382

Intuit GoPayment

The Intuit GoPayment reader is nearly the width of an iPhone, with an extra panel in front to stabilize it in the audio jack as you swipe a card. The unit offers light resistance, helping swipes.

Its biggest drawback: Intuit's list of supported hardware is short, covering iOS devices, 14 Android phones, 2 Android tablets, and about 6 BlackBerry smartphones. Intuit says this is due to the scanner's tight encryption—many Android phones don't correctly interpret the scanner's encrypted signals.

If your phone will work with Intuit's scanner, getting started will take a bit more effort than with Square, as you must provide a lot of information up front. Even so, my test account was approved within a few hours.

Setup is simple: Install the app, and plug in the scanner. However, in the app's settings you must say whether you are using the audio-jack scanner or Intuit's $219 desktop Bluetooth scanner.

The GoPayment app has a system of "items" to which you can add pictures, descriptions, and prices.

For no monthly fee, Intuit GoPayment charges swipes at 2.7 percent with no transaction fee except on American Express cards, and at 3.7 percent if you key the number in. (For businesses with sufficient volume, Intuit has a plan with lower costs.)

▲ INTUIT'S GOPAYMENT scanner supports fewer phones, due to its encrypted signals.

Intuit promises that funds from transactions will appear in your account within two or three business days.

—Michelle Mastin

★★★½ VERY GOOD

GoPayment | Intuit

Scanner has easy card swiping, but it supports fewer phones.

List: 2.7% charge per swipe

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Power-saving outlets automatically shut off power to unused devices when your computer and peripherals are turned off or on standby. Automatic voltage regulation (AVR) adjusts the undervoltages and overvoltages without using the battery. With our patent-pending AVR bypass, the transformer kicks in only when needed and automatically deactivates when power is stable. Plus, highly efficient APC designs reduce power consumption when power is good and extend runtimes when the lights go out. Together, these power-saving features eliminate wasteful electricity drains, saving you about $40-50 a year. And managing today's Back-UPS couldn't be easier thanks to an integrated LCD that provides diagnostic information at your fingertips.

Trusted insurance for all your business needs

The award-winning Back-UPS provides reliable power protection for a range of applications: from desktops and notebook computers to wired and wireless networks to external storage. The reinvented APC Back-UPS is the trusted insurance you need to stay up and running and reliably protected from both unpredictable power and energy waste!

Keep your electronics up and your energy use down!

Back-UPS models are available with the features and runtime capacity that best suit your application, and many models have been designed with power-saving features to reduce costs.

The high-performance Back-UPS Pro series

High-performance Back-UPS Pro units deliver cost-cutting, energy-efficient features. Power-saving outlets automatically shut off power to unused devices when your computer and peripherals are turned off or on standby, eliminating costly electricity drains. *(BR700G shown above)*

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Top 10 Budget All-in-One Desktop PCs

LAB TESTED

	MODEL	Rating	Performance	Features and specifications
1	CyberNet iOne H5 **$1322 NEW** find.pcworld.com/72397	★★★★½ VERY GOOD	• WorldBench 6 score: 133 • WorldBench 6 rating: Superior • Overall design: Fair	• 2.8GHz Core i7-860 • 8GB RAM; 500GB storage • AMD Mobility Radeon HD 5730 • DVD-RW
	▸ The iOne H5 delivers powerful desktop PC performance in a basic, business-oriented all-in-one package.			
2	Polywell AIO-H6100AA **$1199 NEW** find.pcworld.com/72398	★★★★½ VERY GOOD	• WorldBench 6 score: 140 • WorldBench 6 rating: Superior • Overall design: Fair	• 2.5GHz Core i5-2405S • 8GB RAM; 2TB storage • Intel integrated graphics • DVD-RW
	▸ Polywell's model offers category-leading performance, but it's saddled with lackluster entertainment options.			
3	BEST BUY Lenovo ThinkCentre Edge M91z **$900 NEW** find.pcworld.com/72399	★★★★ VERY GOOD	• WorldBench 6 score: 132 • WorldBench 6 rating: Superior • Overall design: Very Good	• 2.5GHz Core i5-2400S • 4GB RAM; 500GB storage • Intel integrated graphics • DVD-RW
	▸ The sleek, business-focused ThinkCentre Edge M91z, though not a high-end machine, boasts excellent performance.			
4	Toshiba DX1215 **$934 NEW** find.pcworld.com/72400	★★★★ VERY GOOD	• WorldBench 6 score: 115 • WorldBench 6 rating: Very Good • Overall design: Very Good	• 2.3GHz Core i5-2410M • 4GB RAM; 700GB storage • Intel integrated graphics • DVD-RW
	▸ The excellent, gorgeous touchscreen is a pretty good reason to buy Toshiba's DX1215. It has great speakers, too.			
5	HP Compaq 6000 Pro **$1139** find.pcworld.com/71786	★★★★½ VERY GOOD	• WorldBench 6 score: 116 • WorldBench 6 rating: Very Good • Overall design: Very Good	• 3GHz Core 2 Duo • 4GB RAM; 500GB storage • Nvidia GT230 • DVD-RW
	▸ HP's all-business all-in-one provides strong performance, and it also leaves you some room for tinkering.			
6	HP Omni 200 Quad **$1139** find.pcworld.com/71787	★★★½☆ VERY GOOD	• WorldBench 6 score: 132 • WorldBench 6 rating: Superior • Overall design: Fair	• 2.8GHz Core i5-760 • 6GB RAM; 1TB storage • ATI Radeon HD 5570 • DVD-RW
	▸ The Omni 200 Quad all-in-one desktop kicks performance into high gear—but where are all the fashionable features?			
7	Acer Veriton Z410G **$720** find.pcworld.com/71788	★★★☆☆ GOOD	• WorldBench 6 score: 104 • WorldBench 6 rating: Good • Dverall design: Fair	• 3GHz Pentium E5700 • 2GB RAM; 320GB storage • Intel integrated graphics • DVD-RW
	▸ Though the Veriton Z410G is well connected and moderately priced, it is a relatively bare-bones, nothing-fancy model.			
8	MSI Wind Top AE2050 **$1499** find.pcworld.com/71790	★★½☆☆ FAIR	• WorldBench 6 score: 53 • WorldBench 6 rating: Poor • Overall design: Fair	• 1.6GHz Fusion E-350 • 4GB RAM; 1TB storage • AMD Radeon HD 6310 • DVD-RW
	▸ The MSI Wind Top AE2050 delivers appealing features inexpensively, but several compromises hurt its standing.			
9	HP Omni 100 **$559** find.pcworld.com/71569	★★½☆☆ FAIR	• WorldBench 6 score: 70 • WorldBench 6 rating: Poor • Overall design: Good	• 1.6GHz Athlon II X2 250u • 3GB RAM; 400GB storage • AMD Radeon HD 4270 • DVD-RW
	▸ HP's extremely low-cost Omni 100 system can't keep up with competing budget all-in-ones that cost a little more.			
10	HP 100B All-in-One **$559** find.pcworld.com/72401	★★½☆☆ FAIR	• WorldBench 6 score: 53 • WorldBench 6 rating: Poor • Overall design: Good	• 1.6GHz Fusion E-350 • 2GB RAM; 1TB storage • AMD Radeon HD 6310 • DVD-RW
	▸ The HP 100B has a nice, bright screen and is very inexpensive, but it fails to deliver on performance and features.			

CHART NOTES: Ratings are as of 10/27/11. Budget all-in-one PCs generally have screens under 23 inches (diagonal).

MORE ONLINE Visit find.pcworld.com/71036 to see in-depth reviews, full test results, and detailed specs for each desktop on this chart.

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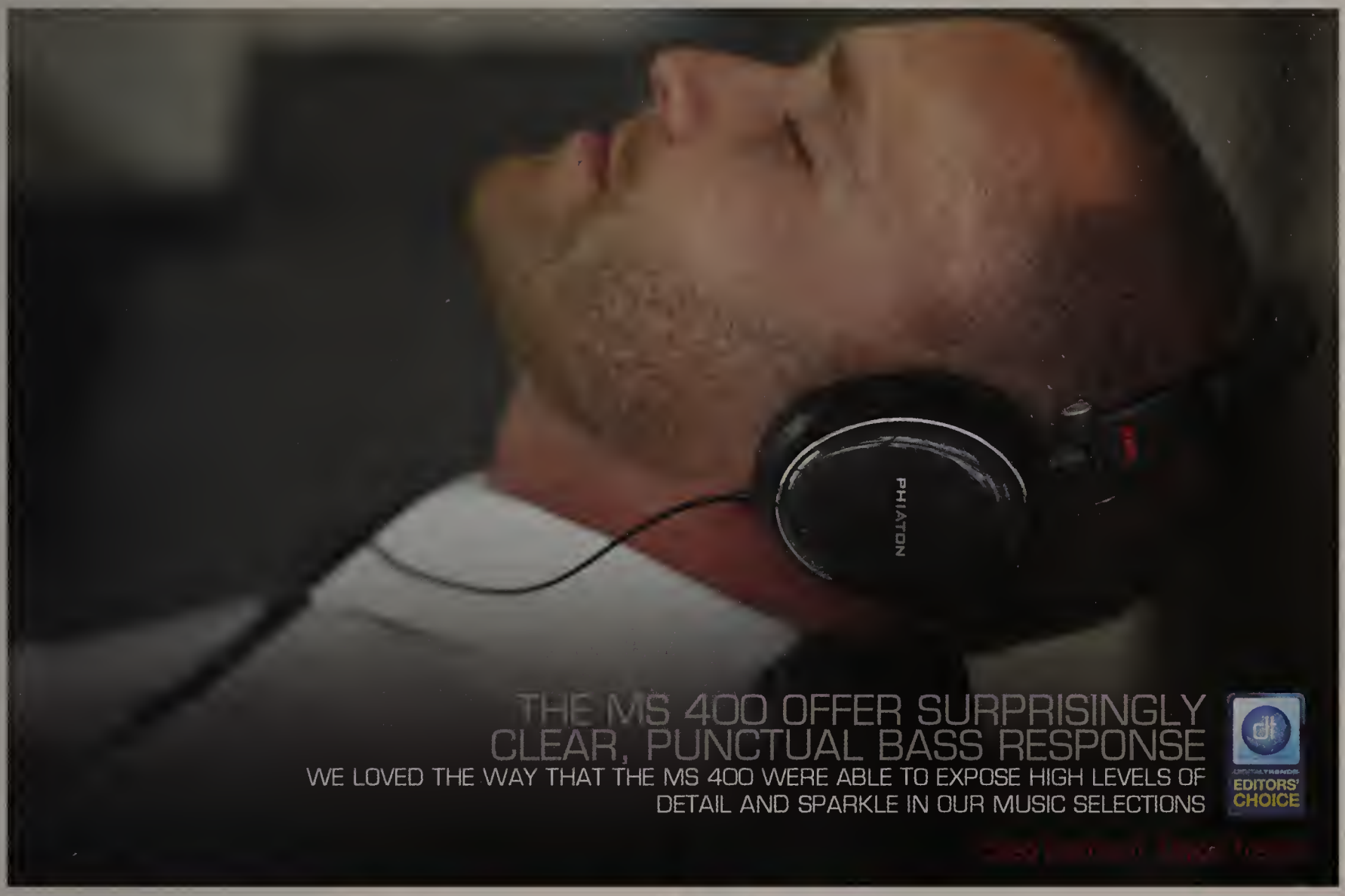

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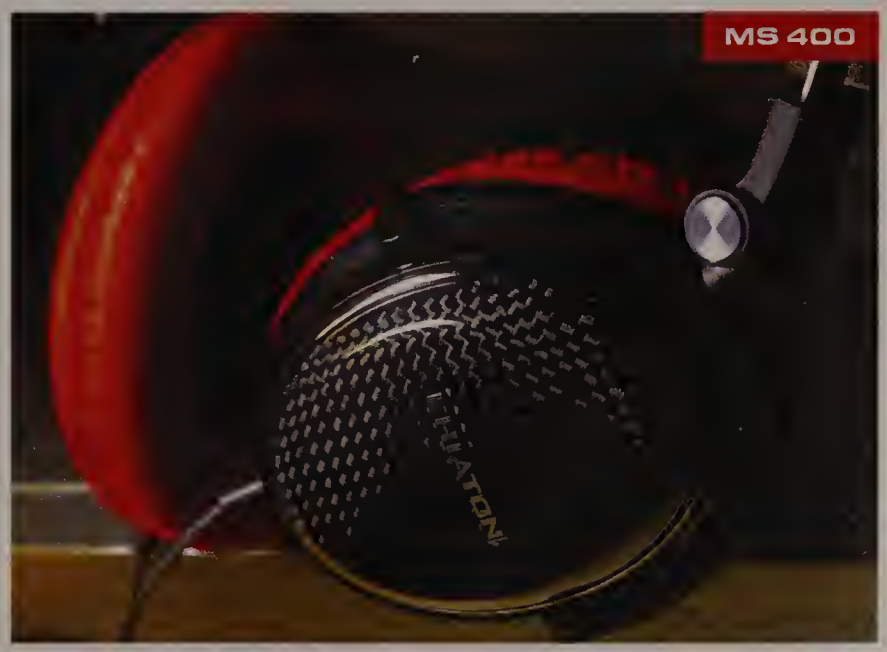

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Corel's Crowded Editor

COREL PAINTSHOP PRO X4 ($100) is a powerful, capable image-editing app that could use some serious pruning.

The revised program relies on three primary workspace tabs: Manage, for photo organization; Adjust, a lead-me-by-the-nose editing mode; and Edit, with a vast array of manual image-editing tools. When you change from one mode to another, you have to save your image and wait as the app shifts things around.

The Edit mode houses several interesting new features. Vignette permits you to select the primary subject of your image, and blur and darken the areas around it. Selective Focus feathers one area of your image and blurs the rest.

PaintShop Pro X4 contains more than 75 performance updates, including GPU optimizations, and it supports editing 16-bit images with more tools than before (valuable for editing RAW files). The app never crashed on me, but it seemed lethargic on my fairly powerful PC.

High-dynamic-range (HDR) editing, a prominent new feature of PaintShop Pro X4, lets you combine multiple exposure-bracketed photos to produce a final image that takes the best-exposed elements of each picture. The tool allows you to mask certain elements of your composition while marking other areas for inclusion, but this feature didn't always work.

VIGNETTE ENABLES YOU to select the primary subject of your image, and then blur and darken the areas surrounding it.

Another new feature lets you merge a few photos into one, so you can include some elements and remove others.

—Alan Stafford

★★★½☆ VERY GOOD

PaintShop Pro X4 | Corel

Cluttered image editor holds a trove of powerful, useful tools.

List: $100

find.pcworld.com/72368

Easy Image Editing With CyberLink PhotoDirector

IF YOU OWN a digital camera, you probably have lots of digital images to file, sort, edit, and share. CyberLink's PhotoDirector 2011 ($100) aims to help you do just that.

Using PhotoDirector is easy and intuitive. You can import images—proprietary RAW formats, JPEG, or TIFF—directly into albums; flag, rate, and label them; duplicate or delete; sort by metadata; locate the original; and export. When you export images, PhotoDirector can add copyright information, resize images, and resave them as TIFF or JPEG files, among other possibilities. You can create and save profiles to standardize export options that you commonly use.

IN PHOTODIRECTOR, YOU can adjust white balance, tone, noise, saturation, and sharpness automatically or by using sliders.

PhotoDirector also lets you share images via Facebook or Flickr, or assemble a slideshow movie and share it as an AVC, MPEG, or WMV file (complete with MP3 soundtrack) on YouTube.

With PhotoDirector, improving images was a satisfyingly quick and easy process, and I liked being able to undo applied features without having to backtrack or revert to the original.

PhotoDirector offers access to two dozen presets—from fantasy and retro color to black-and-white—in the trial version; more are downloadable for free. To create effects across multiple images, copy effects and paste them onto other pictures or click to create a new preset.

—Clare Brandt

★★★★☆ VERY GOOD

PhotoDirector 2011 | CyberLink

Powerful, capable image editing and organizing at a budget price.

List: $100

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Top 10 Desktop Replacement Laptops

LAB TESTED

	MODEL	Rating	Performance	Features and specifications
1	Dell Precision M6600 **$5700 NEW** find.pcworld.com/72355	★★★★½ SUPERIOR	• WorldBench 6 score: 152 • WorldBench 6 rating: Superior • Overall design: Superior • Tested battery life: 4:22	• 2.5GHz Core i7-2920XM • 17.3-inch widescreen • 9.2 pounds • 512GB solid-state drive
	▸ When you need a mobile but full-featured workstation, the M6600 will get the job done—but it's massive and pricey.			
2	Asus G73SW **$1650 NEW** find.pcworld.com/71944	★★★★½ SUPERIOR	• WorldBench 6 score: 128 • WorldBench 6 rating: Superior • Overall design: Very Good • Tested battery life: 3:22	• 2.0GHz Core i7-2630QM • 17.3-inch widescreen • 8.7 pounds • 1000GB hard-disk drive
	▸ Asus's high-end G73SW gaming laptop offers good game performance and a solid feature set without breaking the bank.			
3	Origin EON 17-S **$3400** find.pcworld.com/72356	★★★★ VERY GOOD	• WorldBench 6 score: 197 • WorldBench 6 rating: Superior • Overall design: Good • Tested battery life: 2:18	• 2.5GHz Core i7-2920XM • 17.3-inch widescreen • 8.6 pounds • 256GB SSD and 750GB HDD
	▸ Origin's EON 17-S produced some of the best performance numbers we've seen; it stumbles a bit on the ergonomic side, however.			
4	Acer Aspire 8950G-9839 **$1500** find.pcworld.com/71945	★★★★ VERY GOOD	• WorldBench 6 score: 128 • WorldBench 6 rating: Superior • Overall design: Very Good • Tested battery life: 4:21	• 2.63GHz Core i7-2630QM • 18.5-inch touchscreen • 8.3 pounds • 750GB hard-disk drive
	▸ Acer's digital-media powerhouse delivers a bright screen, but the compromises it makes prevent it from reaching the top.			
5	BEST BUY Asus G74SX **$1979 NEW** find.pcworld.com/72357	★★★★ VERY GOOD	• WorldBench 6 score: 150 • WorldBench 6 rating: Superior • Overall design: Superior • Tested battery life: 3:17	• 2.0GHz Core i7-2630QM • 17.3-inch widescreen • 9.9 pounds • 160GB SSD and 750GB HDD
	▸ Though the Asus G74SX is huge, its elegant design and high-octane performance compensate for its lack of mobility.			
6	MSI GT683R **$1450 NEW** find.pcworld.com/72358	★★★★ VERY GOOD	• WorldBench 6 score: 146 • WorldBench 6 rating: Superior • Overall design: Good • Tested battery life: 3:54	• 2.63GHz Core i7-2630QM • 15.6-inch widescreen • 7.5 pounds • 1000GB hard-disk drive
	▸ The GT683R is a powerful machine, but we wish that external peripherals felt like an option rather than a necessity.			
7	Toshiba Qosmio X775 3D **$1900 NEW** find.pcworld.com/72359	★★★★ VERY GOOD	• WorldBench 6 score: 128 • WorldBench 6 rating: Superior • Overall design: Very Good • Tested battery life: 2:12	• 2.0GHz Core i7-2630QM • 17.3-inch widescreen • 8.0 pounds • 500GB hard-disk drive
	▸ You'll have a hard time finding a better multimedia laptop than this impressive desktop replacement from Toshiba.			
8	Sony VAIO F-Series **$1899** find.pcworld.com/71946	★★★½ VERY GOOD	• WorldBench 6 score: 117 • WorldBench 6 rating: Very Good • Overall design: Very Good • Tested battery life: 2:33	• 2.0GHz Core i7-2630QM • 16.0-inch widescreen • 6.9 pounds • 640GB hard-disk drive
	▸ Sony includes Nvidia's 3D Vision with the 16-inch VAIO F-Series, which is more attuned to stereoscopic movies than to games.			
9	Dell Inspiron 17R **$950** find.pcworld.com/71947	★★★ GOOD	• WorldBench 6 score: 114 • WorldBench 6 rating: Very Good • Overall design: Very Good • Tested battery life: 3:33	• 2.3GHz Core i5-2410M • 17.3-inch widescreen • 7.3 pounds • 500GB hard-disk drive
	▸ Subtle, elegant looks and a reasonably strong score on our WorldBench 6 test suite highlight this desktop replacement laptop.			
10	Toshiba Satellite L675D-S7106 **$700** find.pcworld.com/71948	★★ FAIR	• WorldBench 6 score: 78 • WorldBench 6 rating: Fair • Overall design: Very Good • Tested battery life: 2:38	• 2.0GHz Phenom II P860 • 17.3-inch widescreen • 6.1 pounds • 500GB hard-disk drive
	▸ The L675D-S7106 is an affordable desktop replacement with an attractive display and adequate performance for the price.			

CHART NOTES: Ratings are as of 10/27/11. Tested battery life is expressed in hours:minutes. Listed weights do not include the power adapter.

MORE ONLINE Visit find.pcworld.com/70832 to see in-depth reviews, full test results, and detailed specs for each laptop on this chart.

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Pictured: (left) ACTIVE Combo (right) SURFACE and Desktop Cradle

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PDF Editors: Trying to Outperform an Acrobat

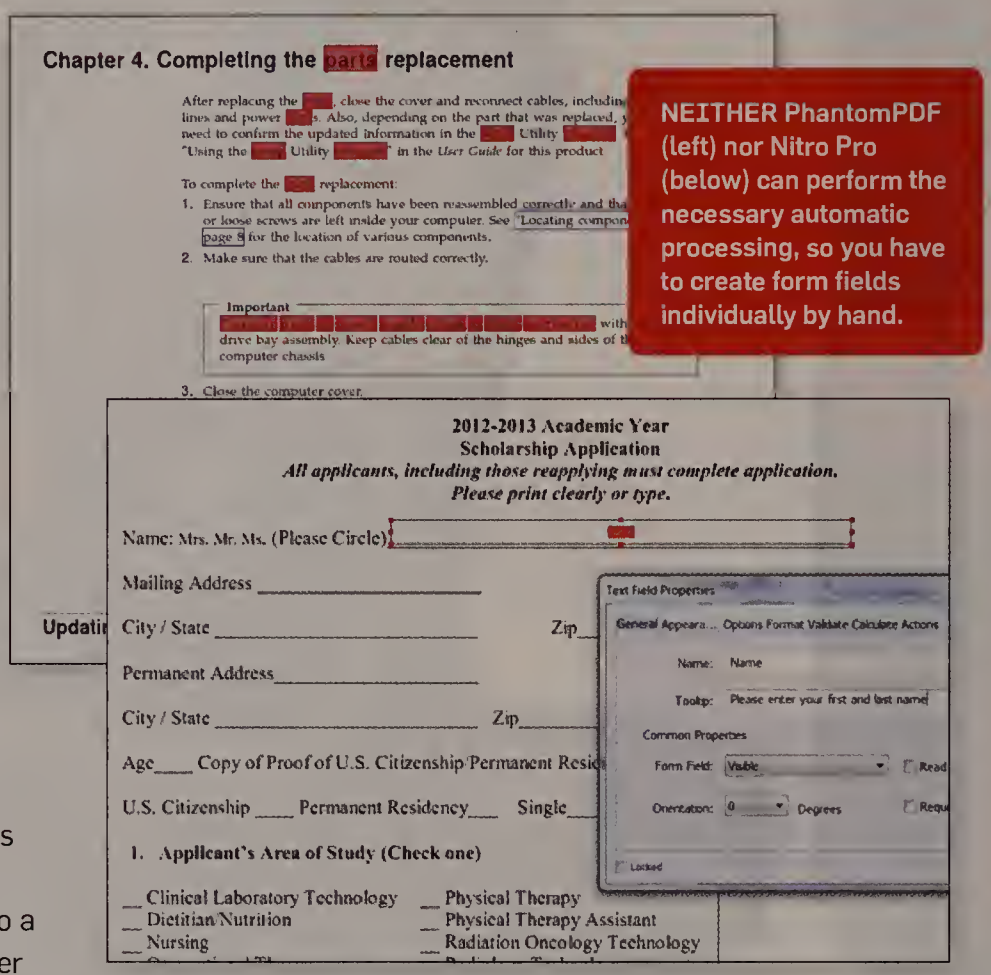
INEXPENSIVE PROGRAMS for editing Portable Document Format files are common, and all of them cost far less than Adobe's Acrobat X Pro does. Two newly updated PDF-editing applications, Foxit PhantomPDF 5.0 Business ($149) and Nitro Pro 7 ($100) are the latest programs to take aim at the reigning king; like other competitors before them, however, they don't blow Acrobat out of the water.

Strong on PDF Conversion

Both apps converted documents from their native formats to PDF quite well. Microsoft Word and Excel documents reproduced very accurately; HTML documents, less so—but that's a challenging task.

Converting from PDF to a different format is another common task, but neither program handled this job well in my tests. I tried to convert a 58-page, monochrome PDF user manual to Word, but PhantomPDF failed to include many of the file's images, and it produced the manual's first page as A4 (8.27 by 11.69 inches), rather than as a standard letter-size (8.5 by 11) page. But it finished the job in 1 minute, 20 seconds—about a minute faster than Nitro Pro 7.

When I attempted to convert the manual with Nitro Pro 7, the software crashed itself and Word repeatedly. Other documents that I converted to Word had incorrect fonts, type sizes, and spacing, as well as missing images. The company then rewrote portions of the application and gave me access to the updated software, which performed much better, though some documents still suffered from missing images.



NEITHER PhantomPDF (left) nor Nitro Pro (below) can perform the necessary automatic processing, so you have to create form fields individually by hand.

Forming a Line

One onerous PDF task involves creating forms with fields to receive typed information from users. Acrobat X can analyze a document and automatically generate many of the needed fields with fairly good accuracy, speeding up the process of producing such forms. But neither rival program I tested can perform automatic processing of form fields.

The applications now have redaction capabilities. Like Acrobat X, Nitro Pro 7 has a search-and-redact feature: You search for words or phrases, and check a box to mark them for blacking out. You can also save a PDF with elements marked for redaction, so someone else can review the elements and apply the final redaction. For its part, PhantomPDF requires you to mark elements for redaction manually.

PhantomPDF 5.0 Business consists of two discrete apps: PhantomPDF and (available only in the Business Edition of Foxit's software) PhantomPDF Advanced Editor. The latter app allows you to edit text, images, graphics, and other elements of a PDF. You can use the main application to convert documents to different formats; to add comments, bookmarks, and form fields; and to take advantage of the redaction features. For me, having to figure out which application I was supposed to use could be confusing at times.

A feature in PhantomPDF 5.0 Business that I liked a lot was a single button in the toolbar that lets you display only the text in a document. No more copying text block after block—just click the button, select all, and copy the whole thing at once.

—Alan Stafford

★★★☆☆ **GOOD**

PhantomPDF 5.0 Business
Foxit Software
Flexible PDF editor is hobbled by a paucity of advanced features.
Street: $149
find.pcworld.com/72393

★★★☆☆ **GOOD**

Nitro Pro 7
Nitro Software
Fine for single convert-to-PDF tasks, but not an Acrobat beater.
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LaCie Drive Integrates NAS With Cloud Storage

IT'S SMART TO have three copies of your vital data: the original, a local backup, and an offsite backup. LaCie's CloudBox NAS device lets you back up to the ethernet-connected unit, which then backs up to LaCie's cloud service. But easy as it is, the CloudBox is also expensive, low-capacity, and quite slow.

You pay $199 for a 100GB hard drive plus one year of the backup service; a $129 yearly fee for backing up online kicks in after the first year of service ends.

Matching the local capacity with the online capacity does keep things simple, and 100GB is more than adequate for backing up financial documents, email, and the like. But it isn't enough space to support a full backup of many users' data.

The gigabit-capable CloudBox wrote a 15GB mix of small and large files across my gigabit network at 9.9 mbps, improving only slightly to 12.5 mbps when reading them. That's slower than any similar storage drive I've seen in years—and slower than many USB 2.0 direct-attached storage boxes. I tried the CloudBox on several different systems and routers, and got essentially the same results each time.

—Jon L. Jacobi

THE CLOUDBOX BACKS up to LaCie's cloud service automatically.

★★½☆☆ FAIR

CloudBox | LaCie

Storage device is simple but small, slow, and expensive.

List: $199, with one-year storage

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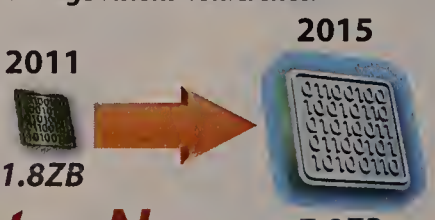

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Browser Add-On Speeds Cloud Data Searches

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LIGHTNING-FAST SEARCH tool CloudMagic finds search results in email, calendar entries, and more. With one query, this browser add-on for Google Chrome and Mozilla Firefox sifts through Gmail, Google Apps Email, Google Docs, Google Calendars, Google Contacts accounts...and now Twitter, too.

CloudMagic's tabbed interface lets you switch between five categories of content—Mails, Events, Docs, Contacts, and Tweets—so finding what you want is a snap. And in my tests, the results that CloudMagic delivered were excellent. The vendor says that the version 3.1 beta is up to 100 times faster than previous versions—and though I didn't attempt to corroborate that figure, I can attest to the fact that CloudMagic is very fast. Search results appear in real time.

★★★★★ VERY GOOD

CloudMagic | **Webyog**

Fast, accurate add-on searches multiple online content sources.

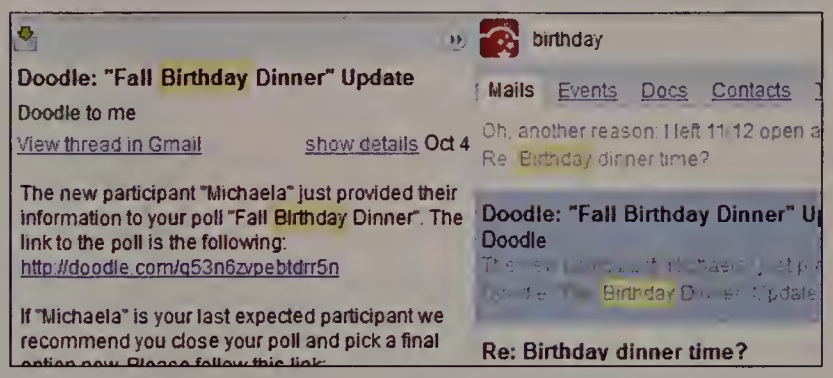
Free

find.pcworld.com/72392

Though useful, CloudMagic's new Twitter search is limited to searching your tweets, retweets, and direct messages. If you want to search for users or hashtags, you'll need to work with a more advanced utility such as Twitter Search.

CloudMagic's speed and accuracy always impress me. By adding Twitter search, this free app has only gotten better.

—Liane Cassavoy



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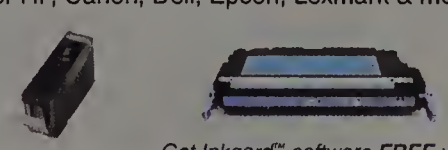

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Pick Your Size and Style: Shown from left are the 7-inch Lenovo IdeaPad A1, the 8.9-inch Samsung Galaxy Tab 8.9, the 10.1-inch Toshiba Thrive, and the 10.1-inch Asus Eee Pad Slider.

Android Tablets:

Finally Ready?

Sure, the iPad is great. But it isn't right for everyone. A new tablet from Samsung, Sony, Toshiba, or another maker may be a better choice for you. »

BY MELISSA J. PERENSON
PHOTOGRAPHS BY ROBERT CARDIN

Choice. For a long time, you didn't have much choice if you were in the market for a tablet—Apple's iPad was the only good option. But that's starting to change: Though the iPad 2 remains the top slate overall, the best choice for you may well be one that runs Google's Android operating system.

It all depends on what you need from a tablet. Lots of Android models beat the iPad 2 in specific respects. Some have longer battery life, for instance. Others make it easier to get work done. Some are simpler to use with a camera or TV. Others may come in a size that you find more convenient.

Of course, a tablet's operating system is hugely important. iOS is consistent, polished, and dependable. If you buy Apple's tablet, however, you also buy into Apple's universe—and you can use only the apps that Apple okays.

Android gives you more freedom and control (although it doesn't always work as smoothly). And Android offers several other benefits. For example, Android 3.*x* Honeycomb was made to take full advantage of larger tablet displays, and it does a better job than iOS 4.*x* or 5.*x* in effectively using the screen for notifications, email, Web browsing, and image viewing.

Android is dynamic and customizable. You can tailor the home screens' look and function. Many apps have live widgets that let you preview email or weather from the home screen, without opening the app. Some tablets have custom apps with navigation shortcuts; Lenovo's favorite-apps ring stands out, as does Sony's customizable menu design. In contrast, iOS screens are static; the icons are just graphics that open apps.

You have more Android hardware choices, too. Tablets come in varied screen sizes: 7 inches, 8 inches, 8.9 inches, 9.4 inches, 10.1 inches. Some have screens of a higher resolution than the iPad 2's display, some offer the option to add more storage with a memory card, and some boast integrated ports.

Android can't compete with iOS, however, in the number of available apps. More than 100,000 apps are designed to run on the iPad, but at this point it's unclear how many apps are made specifically for Android Honeycomb tablets. It's difficult to know for sure because Google's Android Market doesn't make it easy to find apps created especially for tablets.

Android 4.0 Ice Cream Sandwich, due out on phones by the time you read this and on tablets in early 2012, should encourage developers to create more apps that will work on Android tablets. Theoretically the new OS will let developers scale their apps from small screens to large, so one app can serve both phones and tablets. Don't expect Android 4.0 to be an instant cure, however. It will be some time before you see a jump in the number of apps that properly employ tablets' larger screens. And finding apps may continue to be a problem: Although Google says the Market returns results that are appropriate for the device you're searching from, in our experience it's no guarantee that a listed app will display or work well on a tablet.

We examined more than two dozen tablets for this roundup, working with each model extensively and running all of them through the PCWorld Labs suite of tablet tests. The iPad 2 is our top choice overall, primarily because of the strength of its app ecosystem and how it allows you to find apps. However, Android tablets, led by the Samsung Galaxy Tab 10.1, are hot on the trail of our leader, excelling in areas such as enhancing productivity and playing well with other devices.

Photos, Music, and Video

BEST: Samsung Galaxy Tab 10.1

For many people, a tablet primarily serves as an entertainment device meant for viewing photos, listening to music, or watching video. For those uses, no tablet beats the Samsung Galaxy Tab 10.1. It benefits from Android's open platform, which lets you transfer media files from your PC to the tablet directly, no software intermediary or video transcoding needed. In our tests, transferring media files to the Tab 10.1 took half as long as doing so to the iPad 2, which required iTunes software.

Furthermore, Android's Gallery app is more flexible, and

Ports

TOSHIBA'S THRIVE PACKS the most ports of any tablet, including full-size USB and HDMI, and Mini-USB under a flap. On the other side is an SDXC card slot.

PHOTOGRAPH ROBERT CARDIN

provides more options, than Apple's built-in photo viewer. Video looks great on the Tab 10.1's sharp display, too.

Apple's iPad 2 uses iTunes to sync music and video to the tablet. This arrangement is fine for music and video already in your iTunes library, but not great for video captured from other sources. Syncing images through iTunes is a pain as well.

The iPad 2's biggest strength is its display, which has good color accuracy and skin tones, and the best balance of colors we've seen. The display lacks the resolution necessary to produce crisp, detailed images, however, and it struggled »

ANDROID TABLETS PROVE WORTHY CHALLENGERS TO APPLE'S IPAD 2

LAB TESTED

	MODEL	Rating	Features and specifications	Performance	Bottom line
1	Apple iPad 2 **$499 (16GB), $599 (32GB), $699 (64GB)**[1] find.pcworld.com/71908	★★★★ VERY GOOD	• 9.7-inch display • 1024-by-768-pixel resolution • 9.5 by 7.3 by 0.34 inches • 1.33 pounds	• Overall performance: Very Good • Overall design: Very Good • Tested battery life: 8:24 • Battery recharge time: 4:10	Apple's tablet stays on top thanks to its strong blend of performance, usability, and a supporting app ecosystem.
2	Samsung Galaxy Tab 10.1 **$500 (16GB), $600 (32GB)**[1] find.pcworld.com/71909	★★★★ VERY GOOD	• 10.1-inch display • 1280-by-800-pixel resolution • 10.1 by 6.9 by 0.34 inches • 1.24 pounds	• Overall performance: Very Good • Overall design: Very Good • Tested battery life: 10:42 • Battery recharge time: 5:34	The flagship Tab is sleekly designed and lightweight, and it offers some mostly useful TouchWiz software tweaks.
3	Samsung Galaxy Tab 8.9 **$450 (16GB)**[1] find.pcworld.com/72416	★★★★ VERY GOOD	• 8.9-inch display • 1280-by-800-pixel resolution • 9.1 by 6.21 by 0.34 inches • 0.99 pounds	• Overall performance: Very Good • Overall design: Very Good • Tested battery life: 6:00 • Battery recharge time: 4:13	This tweener-size tablet balances screen real estate and portability, but the display has a slightly greenish cast.
4	BEST BUY Toshiba Thrive **$400 (16GB), $480 (32GB)** find.pcworld.com/72134	★★★½ VERY GOOD	• 10.1-inch display • 1280-by-800-pixel resolution • 10.75 by 6.97 by 0.62 inches • 1.6 pounds	• Overall performance: Very Good • Overall design: Very Good • Tested battery life: 6:00 • Battery recharge time: 2:30	With this tablet's added bulk, you get tons of ports not found on rivals. We just wish the display had better colors.
5	Sony Tablet S **$500 (16GB), $600 (32GB)** find.pcworld.com/72411	★★★½ VERY GOOD	• 9.4-inch display • 1280-by-800-pixel resolution • 9.5 by 6.8 by 0.3 inches • 1.31 pounds	• Overall performance: Good • Overall design: Very Good • Tested battery life: 4:44 • Battery recharge time: 3:19	This wedge-shaped tablet is comfy to hold. It has an IR port for use as a remote, as well as PlayStation Certified support.
6	Asus Eee Pad Slider SL101 **$479 (16GB)** find.pcworld.com/72308	★★★½ VERY GOOD	• 10.1-inch display • 1280-by-800-pixel resolution • 10.75 by 7.1 by 0.68 inches • 2.12 pounds	• Overall performance: Very Good • Overall design: Very Good • Tested battery life: 5:50 • Battery recharge time: 2:35	The heaviest and thickest tablet on the chart is also the only one with a convenient, slide-out, physical keyboard.
7	Lenovo ThinkPad Tablet **$499 (16GB), $569 (32GB), $669 (64GB)** find.pcworld.com/72310	★★★½ VERY GOOD	• 10.1-inch display • 1280-by-800-pixel resolution • 10.25 by 7.15 by 0.55 inches • 1.58 pounds	• Overall performance: Good • Overall design: Very Good • Tested battery life: 5:16 • Battery recharge time: 4:32	Built for business, this tablet offers pen input, encryption, and the best keyboard-case option we've seen.
8	Motorola Xoom **$499 (32GB)**[1] find.pcworld.com/71911	★★★½ VERY GOOD	• 10.1-inch display • 1280-by-800-pixel resolution • 9.8 by 6.57 by 0.51 inches • 1.61 pounds	• Overall performance: Very Good • Overall design: Good • Tested battery life: 7:40 • Battery recharge time: 2:26	The first Honeycomb tablet remains a solid choice partly due to its strong performance. But newer models are lighter.
9	Asus Eee Pad Transformer TF101 **$399 (16GB), $449 (32GB)** find.pcworld.com/71910	★★★½ VERY GOOD	• 10.1-inch display • 1280-by-800-pixel resolution • 10.7 by 6.7 by 0.5 inches • 1.5 pounds	• Overall performance: Good • Overall design: Very Good • Tested battery life: 5:35 • Battery recharge time: 2:55	The TF101 is particularly notable when it is paired with a keyboard dock that adds a touchpad and an extra battery.
10	T-Mobile SpringBoard **$230 (plus 20 monthly $10 payments; with two-year contract)** find.pcworld.com/72412	★★★½ VERY GOOD	• 7.0-inch display • 1280-by-800-pixel resolution • 7.48 by 5.08 by 0.41 inches • 0.88 pounds	• Overall performance: Good • Overall design: Very Good • Tested battery life: 5:07 • Battery recharge time: 2:28	Though this compact model is exclusive to a mobile carrier, it's worth a look if you want a connected Android tablet.

CHART NOTES: Ratings are as of 11/9/11. Battery times are expressed in hours:minutes. [1] Mobile-broadband versions available.

to render text on our image of a Web page. For those reasons, the iPad 2 tied the Tab 10.1 in our subjective display tests.

Though the Tab 10.1 had a few issues of its own, it still finished way ahead of the pack. Colors were oversaturated, to the point where a purple outfit took on blue hues, and reds resembled candy-cane stripes. We also detected a Gallery glitch that affected our Tab model, in which images required a pinch-and-zoom action to sharpen to full resolution. Samsung has identified the issue and plans to fix it in an update.

Meanwhile, all of the Android models we've evaluated struggle to some degree at properly reproducing the browns and neutral shadings of skin tones. That failure is so consistent on tablets from different manufacturers that I can only think something in the way Android handles colors is off.

None of the tested tablets produced terrific audio through their built-in speakers. All of the Android models tended to sound tinny, with soft volume piped through Google's included music player. Again, the universality of this issue makes me wonder whether Android's audio processing is at fault. Here's why: When I played the same tracks through the speakers of the Sony Tablet S in the Google Music Player and in Sony's own music player, the audio sounded transformed in the latter. The audio from Sony's player—which uses several enhancement technologies that the company says it developed for its Walkman series—was far superior, with better bass and body.

Openness and Expandability

BEST: Lenovo ThinkPad Tablet, Sony Tablet S, Toshiba Thrive

The iPad 2 is an island—you can't connect it to another device without a dongle, and even then you may get limited functionality. And you can't add storage; whatever capacity you buy is what you have for the duration.

In contrast, generally Android tablets connect to a TV or camera much more easily, and they let you add more storage through a memory card.

The Sony Tablet S has two features that are handy when you want to use your tablet in your living room. Several tablets, including those from Asus and Samsung, have software for streaming content from your tablet over a home network. But Sony's Tablet S is the only slate that integrates the ability to send content to a device (such as an HDTV) with a simple tap directly from whatever content you want to transmit wirelessly. The Tablet S is also the only model in our Top 10 that can double as a universal remote control. (It's one of just three tablets at this writing to offer a universal remote; the others are Vizio's 8" Tablet VTAB1008, which didn't make our chart, and Samsung's Galaxy Tab 7.0 Plus, which came out too late for inclusion in this story.) The Tablet S has an infrared blaster like the ones in conventional remote controls, along with a well-designed on-screen remote to use with your home entertainment system.

For a reliable connection to your HDTV, be sure to select a tablet that has a full-size, Mini, or Micro HDMI port built in. Tablets that lack integrated ports—such as the Samsung Galaxy Tab 10.1 and Apple iPad 2—require bulky dongles that will set you back about $40. Aside from the Galaxy Tab 10.1 and the Galaxy Tab 8.9, all of the Android tablets in our Top 10 have an HDMI output of some kind.

Memory card slots obviously make tablets more versatile, but beware: Not all card slots are equal-

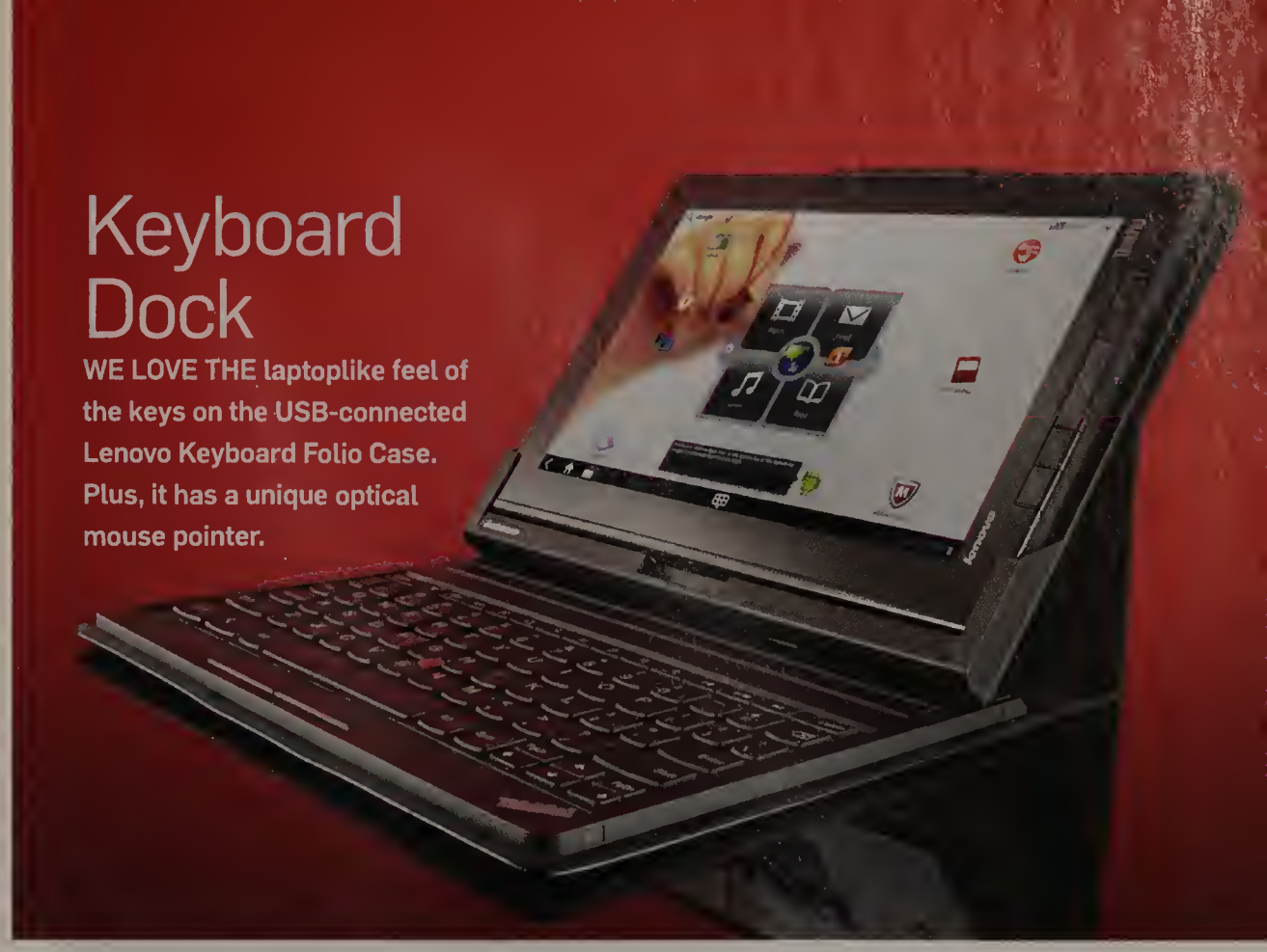
PHOTOGRAPHS: ROBERT CAROIN

Windows Tablets

THE HOOPLA SURROUNDING tablets today is clearly focused on Android and iOS models, but that doesn't mean you can't buy a tablet running Microsoft Windows. Several companies are offering such slates, including Dell, ExoPC, Fujitsu (the Stylistic Q550, pictured below), Hewlett-Packard, Motion Computing, Samsung, and ViewSonic. With prices starting at $650 and running to nearly twice that, however, depending on the configuration, manufacturers typically are positioning these tablets for use in the business world, where the Windows operating system reigns supreme, and where buyers tend to have custom software already designed for the OS. Higher prices, shorter battery life, and the lack of a touch-optimized operating system and apps are among the many reasons Windows tablets remain a niche item so far, but that situation should change soon. When it comes to complete end-to-end compatibility for data, apps, and peripherals, nothing compares to what a Windows device can offer. That's a significant advantage over Android and iOS that Windows tablets should be able to exploit in the next year, upon the launch of Microsoft's touch-optimized OS, Windows 8. Due to arrive later in 2012, tablets running Windows 8 could address the twin troubles of file handling and app compatibility across devices.

ly useful. Some tablets permit you to transfer files from a card, but won't allow you to store apps and data on one. And full-size slots—as opposed to MicroSD slots—mean that you can take the card from your camera and put it directly into your tablet to view your pictures.

Of the three tablets on our chart that come equipped with a full-size SD Card slot, one, the Sony Tablet S, can merely transfer files from the card, not use it for extra storage (Sony says that it will support doing so in a future update). The Lenovo ThinkPad Tablet and the Toshiba Thrive can use memory cards as storage space. And the Thrive is the only tablet to support SDXC, a card format that accommodates up to 100GB of digital data. Both the ThinkPad Tablet and the Thrive also have a full-size USB port for use with flash drives or hard drives.



Keyboard Dock

WE LOVE THE laptoplike feel of the keys on the USB-connected Lenovo Keyboard Folio Case. Plus, it has a unique optical mouse pointer.

Battery Life

BEST: Apple iPad 2

If you spend much of the day away from power outlets, the Galaxy Tab 10.1 may be the best tablet for you. It finished on top in our battery-life tests, running for 10 hours, 42 minutes while continuously playing a 1080p video. The Tab 10.1 lasted 2 hours, 18 minutes longer than its closest rival, the Apple iPad 2, and 3 hours longer than the Motorola Xoom.

Unfortunately, the Tab 10.1 was slow to recharge: It needed 5 hours, 34 minutes, more than double the time that the best performers (the Xoom, the Thrive, and the Acer Iconia Tab A500, A501, and A100) required. The iPad 2 wasn't the fastest at recharging; but at 4 hours, 10 minutes, it provided a better balance between run time and charge time than the Tab 10.1 did, so we think it's a better choice in this category overall.

Productivity

BEST: Asus Eee Pad Slider, Lenovo ThinkPad Tablet

Tablets may not be able to perform hard-core video or photo editing, or crunch macro-filled spreadsheets, but they will let you handle key work tasks such as responding to email, writing and editing business documents, and browsing the Web.

Our two picks here distinguish themselves for very different reasons. The ThinkPad Tablet stands out in one clear way: It's the only 10-inch-class Android tablet on our chart to support pen input, which makes it useful for annotating, sketching, and writing free-form notes. It uses N-trig's digitizer pen (a $30 option), and even offers a spot for you to tuck the stylus away. Yes, you can find numerous capacitive touchscreen pens, but none of them have the precision and accuracy of N-trig's tech. The ThinkPad Tablet's business-friendly security features and options, such as the terrific $100 Keyboard Folio case (pictured above), also make it one to beat in this category.

The innovative Asus Eee Pad Slider, our other selection for productivity champion, lacks business-specific options, and it's the heaviest tablet we've tested. But it's the only slate available that has a built-in physical keyboard—a terrific option if you plan to walk and type at the same time, or if you want the speed and convenience that only an integrated, slide-out keyboard can provide. The slide-out keyboard isn't as roomy as some optional external keyboards, such as the ThinkPad Keyboard Folio Case, but the usefulness of having the keyboard present at all times is unmatched. I also appreciated the fact that the display was set at a comfortable angle when I pulled out the cramped but functional keyboard; the only thing I missed was having an integrated pointing device.

If a pointing device is important to you, consider the other Asus tablet on our chart, the Eee Pad Transformer TF101. It pairs with the company's $150 dock, resulting in a combo that folds together like a clamshell netbook. And when you don't want the bulk and weight of the keyboard, no problem—just detach it and go. The dock also has a USB port and an SD Card slot, plus an extra battery and an integrated touchpad.

Although external Bluetooth keyboards and keyboard/case combos are options, it's important to look at a tablet's built-in software keyboard, too. An inefficiently designed keyboard can give you much grief in the long run—especially if you can't replace it, as is the case with Apple's native iOS keyboard.

Regrettably, Apple's keyboard is one of the most awkward on-screen keyboards I've used. Other keyboard layouts and »

Gaming

SONY'S TABLET S is the only tablet that's PlayStation Certified. Sony expects to grow its classic-game offerings, and you'll be able to use a physical controller, too.

designs are far superior, with better key placement and spacing, and more-useful shortcuts. I can touch-type more quickly on the default Android keyboard than I can on the iPad 2 keyboard. The new split thumb-keyboard design available in iOS 5 is good, but you can add something similar to Android by buying one of several replacement-keyboard apps. That Android lets you replace the keyboard with a third-party app is a critical productivity difference between iOS and Android.

Many Android tablets come with a customized keyboard from the get-go. The Tab 10.1 has one of my favorite custom keyboards; I find it well designed and finger-friendly. The Asus, Lenovo, Sony, T-Mobile, and Toshiba tablets on our chart also supply their own on-screen keyboards.

The iPad 2 is subpar in content creation as well, since iOS lacks a central file management system. That means files end up associated with specific apps—and you can get those files out only if an app is written in a way that allows it. For example, if you use Dropbox to access a file, you can open that file only in an app that's written to interface with Dropbox; the same condition applies if you open an email attachment. Bottom line: On the iPad 2, you don't have full control over your data.

Android tablets permit you to access the central file system, messy though it may be. The advantage becomes clear the first time you want to, say, transfer a file from an SD Card, edit it in one app, rename it, open it in a second app, and then email it to a new destination. Or you might want to move images around into different folders, a task that's quite easy to do in a file-manager app on Android, but not on iOS.

I also prefer Android's included productivity software over the apps that iOS offers. I like the way the Android Web browser works, and the way the Gmail app is designed, too.

Productivity is one of the few areas in which Android tablets compete with the iPad in the availability of apps. You'll find suites such as Documents to Go, Polaris Office, Quickoffice, and ThinkFree Mobile Office designed for Android tablets. The Android Market also features a plethora of file managers and remote control software.

For productivity, generally you should go straight to the larger models: The 10.1-inch Android tablets have roomy, widescreen displays that offer almost as much real estate as a netbook does. However, the 7-inch, 1280-by-800-pixel T-Mobile SpringBoard has one advantage: It's the first of a new wave of high-resolution displays. In our tests, its smoothly rendered, nonpixelated text stood in sharp contrast to the text on most Android models. While text is certainly readable on other tablets, going from one of them to the SpringBoard reminds me of when an optometrist makes a simple adjustment and the eye chart goes from slightly fuzzy to crisp.

Gaming

BEST: Apple iPad 2

A great gaming tablet needs to have capable hardware and a terrific selection of games. On both criteria, the iPad 2 can't be beat. In its sheer ability to process frames per second, it leads all comers. The iPad 2 produced 52 fps on our gaming test with antialiasing off, scoring 27 percent higher than the nearest Android rival, the 7-inch, 1024-by-600-pixel Acer A100, which hit a frame rate of 41 fps. (The test we run, GLBenchmark 2.1, is representative of a 3D game using OpenGL. We run the test at the tablet's native screen resolution; if a slate has a comparatively low resolution, it could do better in this metric.)

We saw a wide variance among the test results for Honeycomb tablets. In fact, among Android 3.1 and 3.2 models with the same core components (Nvidia Tegra 2 CPU, 1GB of memory), the difference was as large as 77 percent. Some of that variance might be attributable to the tablets' different screen sizes, while some might stem from the optimization changes that manufacturers make to the Android software. However, most of the tablets with Tegra 2 chips averaged between 20 and 30 fps. (On desktop and laptop PCs, we consider 30 fps the minimum playable frame rate for games, although some games may play acceptably at lower frame rates.)

The benchmark we use stresses a given tablet's 3D-graphics performance, but few games available today will push an

PHOTOGRAPH ROBERT CARDIN

Android tablet to anywhere near its limits. (If you're interested in such games, however, take a look at titles optimized for Nvidia's Tegra 2 processor.) Popular games such as Angry Birds and Bejeweled, for example, won't stretch your tablet's graphics capabilities.

In fact, you'll find relatively few games available for Android tablets at all. A far larger selection of games is available for the iPad, and more marquee developers are working on iOS games than on games for Android. And as with Android apps in general, you may not be able to tell from the Android Market description whether a game will even work on a particular Android tablet, let alone whether it's optimized for a tablet.

Now that Android 4.0 has arrived, however, the situation may begin to evolve. We expect to see more tablet-friendly games, since, as noted earlier, Ice Cream Sandwich changes how Android scales apps for different-size screens. Additionally, by default the new OS enables hardware graphics acceleration for smoother gameplay.

Sony's Tablet S, in particular, has the potential to play a wider variety of games than other Android tablets because it has access to Sony's PlayStation Store, which is gradually ramping up its selection of titles (about a dozen are becoming available in the fall, and more are expected by year's end). The company intends to provide Android versions of classic PlayStation and PlayStation Portable games. For instance, the Tablet S comes preloaded with Crash Bandicoot, which was a hoot to play once I got used to the on-screen replica of the PlayStation controls. The graphics of this 1996 title seemed ragged, but the game remains entertaining. Sony plans to open access to its PlayStation Store to more tablets; for now, though, this is Sony's secret weapon for game lovers.

In our gaming tests, the Tablet S tied with the Lenovo ThinkPad Tablet, achieving an average of 30 fps, enough to handle challenging game graphics smoothly.

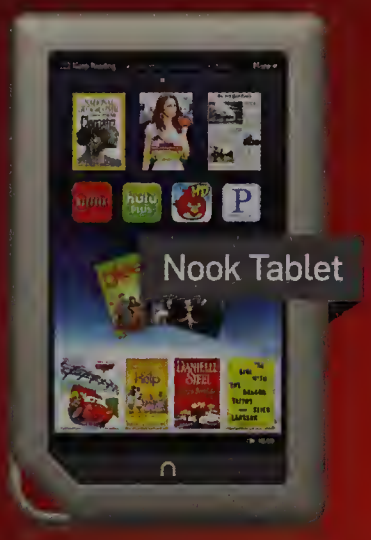
Looking ahead in gaming, Android has one wild card in its favor: The OS supports physical game controllers connected via USB or Bluetooth. This capability is a big boon, assuming developers take advantage of it. Apple's offering has no similar feature: The iPad 2 lacks a USB port, and iOS doesn't allow Bluetooth game controllers to interface with the tablet. ●

PHOTOGRAPH: (BOTTOM) ROBERT CARDIN

What Lies Ahead?

WHAT WILL TABLETS look like in the coming year? You can expect them to become even lighter and thinner than they are now. Already, 1.2 to 1.3 pounds is the new normal weight, with 0.3 to 0.4 inch the new standard in thickness.

Higher-resolution displays are coming, as well. For example, the 1024-by-768-pixel iPad 2 offers only 132 pixels per inch, but the upcoming Toshiba Thrive 7" Tablet (the smaller cousin of the Thrive on our chart), with a 1280-by-800-pixel display, will boast 225 pixels per inch, the same as on the T-Mobile SpringBoard reviewed in this roundup. The extra pixels help smooth out the text, so you won't see the dots that form the letters. Rumors are running rampant that a high-resolution display, akin to the one in the iPhone 4S, will be in the next version of the iPad.



Quad-core chips are slowly rolling out, and with them tablets should become more capable performers than they are today. First to market is Nvidia's Tegra 3, included in Asus's Transformer Prime, a slimmer, redesigned version of the first-gen Transformer in this roundup. The Prime is due to arrive by the end of 2011. And we expect to hear about more tablets using quad-core chips—from Nvidia and other manufacturers—during the 2012 International CES trade show.

Android tablets will migrate to Android 4.0 Ice Cream Sandwich, the mobile operating system touted as the great unifier between the divergent Android 2.*x* phone and 3.*x* tablet platforms. The actual benefits and implications for tablets remain fuzzy, however, since no tablet had shipped with Android 4.0 at press time. The Transformer Prime is expected to be the first tablet with the new OS, which Asus plans to deliver as an over-the-air update in early 2012. In addition, some older Android tablets will get an update to Ice Cream Sandwich, but details were vague at this writing.

The final trend to watch is the rise of the specialty budget tablet. Amazon has entered the market full-tilt with the $200 Kindle Fire, a media-consumption tablet designed for use with Amazon's cloud services and app store, but not with the Android Market. The Kindle Fire lacks many features found in competitors—it has no camera, and it holds just 8GB of storage—but it carries that bargain price. Barnes & Noble is parrying with the $250 Nook Tablet, which has twice the memory and more than twice the on-board storage of the Kindle Fire, as well as an expansion slot for a 32GB MicroSDHC card. And Kobo has released its own Android-based media tablet, the $200 Vox.

Reinventing: Innovation

Constantly striving to improve the PC experience, MAINGEAR offers the very best for extreme performance with innovations from their EPIC Research Labs. The exclusive MAINGEAR EPIC 180 CPU liquid cooling system offers a 20% increase in thermal performance that is also whisper quiet, while the MAINGEAR EPIC X2 GPU liquid cooling solution keeps even dual GTX 590 SLI graphics cards 18 degrees Celsius cooler and 12 decibels quieter than stock air cooling. These liquid cooling solutions are combined with the new EPIC Audio Engine that allows you to hear every blood drop when you make a kill in a game and ensures your squad can hear you no matter what. These innovations are packed in a clean, sleek exterior design; a monolith designed to give gamers the ultimate experience. Customized with the latest Intel® Core™ i7 Processors overclocked up to 5.2GHz, and your choice of single or multi-GPU solutions with NVIDIA® GeForce® graphics, get ready for innovation that redefines its own definition.

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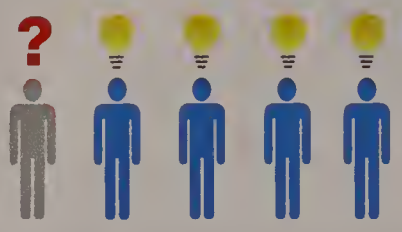
In the market for a PC, smartphone, tablet, camera, or HDTV? Our readers—more than **63,000** of them—told us which manufacturers make rock-solid products, which vendors stand behind what they sell, and which companies may leave you high and dry. »

Which Tech Brands Can You Trust?

by MARK SULLIVAN

Laptops

Dell and HP consumer laptops have become more durable over the years, but not as rapidly as several smaller rivals have. As a result, readers continue to ding the two large vendors on reliability measures. Apple laptop users gave their machines high marks for durability, support, and most features, except "performance for the price." Asus, in contrast, got praise from customers for selling a lot of laptop for the money.



1 IN 5: PROPORTION OF PROBLEMS FOR WHICH LAPTOP MAKERS' ONLINE RESOURCES OR LIVE PHONE SUPPORT COULD NOT PROVIDE A SOLUTION.

TOP 10 THINGS THAT GO WRONG WITH LAPTOPS

19% Operating system

18% Hard drive

11% Power supply

9% Graphics/Video

9% Keyboard

9% Motherboard

6% Monitor/Screen

6% Wireless connection

5% DVD drive

4% System memory/RAM

LAPTOPS: APPLE IS TOPS IN RELIABILITY RATINGS...

BRAND	Problem on arrival	Any significant problem	Any failed component	Dead PC[1]	Overall satisfaction with reliability
Apple	■	■	■	■	■
Samsung	■	◒	◒	■	■
Toshiba	◒	◒	■	■	■
Asus	◒	■	◒	◒	■
Acer	◒	◒	■	◒	◒
Digital Storm	■	◒	◒	◒	◒
MSI	◒	◒	■	◒	◒
Compaq	◒	◒	◒	◒	◒
Gateway	◒	◒	◒	◒	◒
HP for Business[2]	◒	◒	◒	◒	◒
iBuyPower	◒	◒	◒	◒	◒
Lenovo	◒	◒	◒	◒	◒
Micro Express	◒	◒	◒	◒	◒
Sony	◒	◒	◒	◒	◒
Dell for Business[3]	◒	◒	□	□	◒
HP for Home[4]	◒	□	◒	◒	□
Dell for Home[5]	◒	□	□	□	◒

◒ AVERAGE ■ BETTER THAN AVERAGE □ WORSE THAN AVERAGE [1] "Dead PC" indicates a failure in one of a system's core components. The six laptop "core components" in our categorization are CPU, motherboard, RAM, graphics chip, hard drive, and power supply. [2] HP for Business laptops include the EliteBook, Mini, and ProBook product lines, among others. [3] Dell for Business laptops include the Latitude, Precision, and Vostro product lines, among others. [4] HP for Home laptops include the Envy, Pavilion, and TouchSmart product lines. [5] Dell for Home laptops include the Adamo, Inspiron, Studio, and XPS lines.

Overall satisfaction with laptop reliability

2008 68% VS. 2011 82%

ILLUSTRATION FLORAFAUNA

Satisfaction

WINNERS & LOSERS

Display quality
Win: SONY
Lose: acer DELL

Trackpad/ pointing device
Win: SONY
Lose: acer DELL

Keyboard
Win: SONY
Lose: hp acer

Operating noise
Win: ASUS
Lose: DELL hp

Performance for price
Win: ASUS TOSHIBA
Lose: DELL DIGITAL STORM

> Hard drives in two laptops I purchased failed one month after their warranties expired.
>
> —DELL LAPTOP OWNER

...AND IN CUSTOMER SUPPORT (AGAIN)

BRAND	Phone hold time	Web and phone support rating	Problem was never resolved	Service experience
Apple	■	■	■	■
Dell for Business[1]	◒	◒	■	■
Toshiba	■	■	◒	◒
Dell for Home[2]	◒	◒	■	◒
Acer	n/a	◒	◒	◒
Lenovo	◒	◒	◒	◒
Sony	n/a	◒	◒	◒
Asus	◒	□	□	□
HP for Home[3]	◒	□	□	□

◒ AVERAGE ■ BETTER THAN AVERAGE □ WORSE THAN AVERAGE

[1] Dell for Business laptops include the Latitude, Precision, and Vostro product lines, among others. [2] Dell for Home laptops include the Adamo, Inspiron, and Studio lines, among others. [3] HP for Home laptops include the Envy, Pavilion, and TouchSmart product lines. n/a = We received too few responses to rate the company on this measure.

ABOUT THE SURVEY

PCWORLD READERS RATED hardware vendors in seven product categories: laptop PCs, desktop PCs, tablet PCs, printers, smartphones, HDTVs, and cameras. For each category, our survey included at least four measures of the reliability of a brand's products, such as failed components (a laptop hard drive, say) and problems that the user noticed right away ("out of the box").

In the laptop, desktop, and printer categories, we also asked readers about their experiences with customer support.

This year's survey included a series of questions asking readers how satisfied they were with the performance or specific features of a brand's products (Samsung smartphone owners were asked to rate the phone's touchscreen, for instance).

For each reliability, service, and product satisfaction measure, we determined whether the vendor's score was significantly better than, not significantly different from, or significantly worse than the average of its peers.

If a vendor received fewer than 50 responses in a subsection, we discarded the results as statistically insignificant. This threshold prevented us from rating some companies.

We rated smartphone makers on four reliability criteria and five ease-of-use criteria. For wireless carriers that sell smartphones, we evaluated five aspects of their customer support and two aspects of their network performance: wireless Internet service quality and voice call quality.

For details on the measures included in our survey, see [illegible].

»

PHOTOGRAPH: ROBERT CARDIN

Smartphones

PCWorld readers like their iPhones; more survey participants own this model than any other phone, and they praised its durability, ease-of-use, design, and camera quality. HTC phones scored well in those areas, too. But readers had little good to say about LG and Samsung phones, finding fault with their phones' ease of use and with features such as design, touchscreen responsiveness, and overall speed.

WHAT BREAKS MOST

3 IN 4: PROPORTION OF SMARTPHONES THAT WERE REPORTED TO BE TROUBLE-FREE

2 IN 5: PROPORTION OF PROBLEMS NOT COMPLETELY RESOLVED BY CARRIER SUPPORT

WHICH ARE EASIEST TO USE?

EASY: htc

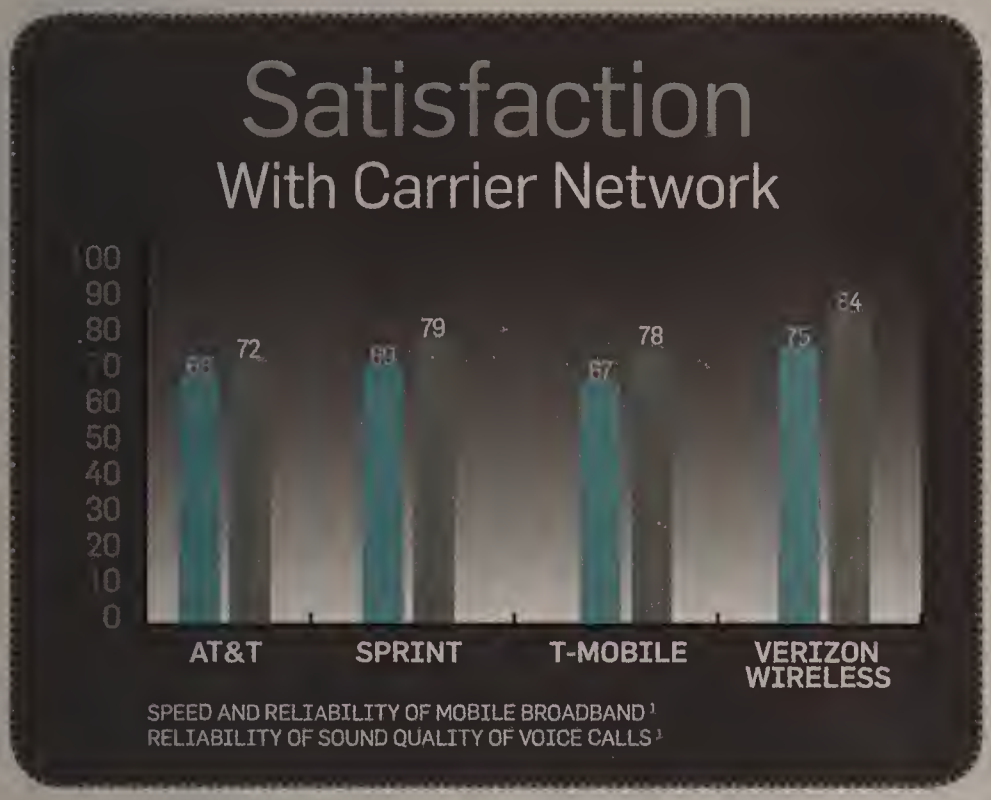
HARD: SAMSUNG, LG, RIM, NOKIA

SMARTPHONES: RIM, SAMSUNG PANNED

BRAND	Problem on arrival	Any significant problem	Severe problem	Overall satisfaction with reliability
Apple	■	■	■	■
LG	◒	■	■	◒
HTC	◒	◒	◒	◒
Nokia	◒	◒	◒	◒
Motorola	◒	□	◒	◒
Palm	◒	□	□	□
RIM (Blackberry)	◒	□	□	□
Samsung	□	□	◒	□

◒ AVERAGE ■ BETTER THAN AVERAGE □ WORSE THAN AVERAGE

ILLUSTRATION FLORAFAUNA; PHOTOGRAPH ROBERT CARDIN



33%

Percentage of Samsung owners reporting a significant problem with their phone during the past two years.

Percentage of Motorola users reporting a problem with their phone.

2010 22% VS. **2011 31%**

"The iPhone is a great device that performs and does what it says it will do. If there is a problem, Apple stands by it 100% with great phone support."

—APPLE iPHONE OWNER

SMARTPHONES: APPLE, HTC PHONE FEATURES SATISFY USERS

BRAND	Design	Touch-screen responsive-ness	Text entry	Display quality	GPS quality	Overall speed	Camera quality
Apple	■	■	■	■	■	■	■
HTC	■	◒	◒	■	■	■	■
Motorola	□	□	◒	◒	■	□	◒
Palm	◒	◒	□	◒	□	◒	□
Samsung	□	□	◒	◒	□	□	◒
Nokia	□	□	◒	□	□	□	◒
RIM (Blackberry)	□	□	◒	□	□	□	□
LG	□	□	□	□	□	□	□

◒ AVERAGE ■ BETTER THAN AVERAGE □ WORSE THAN AVERAGE

Satisfaction With Battery Life

50% NOKIA
47% APPLE
45% RIM
37% LG
29% MOTOROLA & SAMSUNG
23% HTC

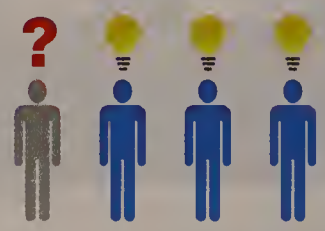
[1] Based on percentage of smartphone users who were "very satisfied" or "extremely satisfied" with their carrier's network services.

Desktops

Dell and HP business PCs received fairly positive ratings, but the companies' home PC lines earned poor marks for durability and product support. Apple ruled the Desktops category, with top marks in reliability, service, and features (from product design to ports and connectivity). Asus finished second thanks to high user satisfaction with the reliability, value, and low operating noise of its machines.

Satisfaction

WINNERS & LOSERS



1 IN 4: PROPORTION OF DESKTOP PC PROBLEMS FOR WHICH HP (FOR HOME) SUPPORT COULD FIND NO SOLUTION

DESKTOP PCs: APPLE, HP POLES APART

BRAND	Phone hold time	Web and phone support rating	Problem was never resolved	Service experience
Apple	■	■	■	■
Dell for Business [1]	◒	◒	◒	◒
Gateway	n/a	◒	☐	n/a
Dell for Home [2]	☐	☐	◒	◒
HP for Home [3]	◒	☐	☐	☐

◒ AVERAGE ■ BETTER THAN AVERAGE ☐ WORSE THAN AVERAGE
n/a = We received too few responses to rate the company on this measure. [1] Dell for Business desktop PCs include the Inspiron, OptiPlex, and Vostro lines, among others. [2] Dell for Home desktop PCs include the Inspiron and Studio lines, among others. [3] HP for Business desktop PCs include the HP Pro 3000, 3130 Pro, and 500B Microtower, among others.

DESKTOP PCs: DELL, HP HOME MODELS TRAIL

BRAND	Problem on arrival	Any significant problem	Any failed component	Dead PC [1]	Overall satisfaction with reliability
Apple	■	■	■	◒	■
Asus	◒	◒	■	◒	■
Dell for Business [2]	■	■	◒	◒	◒
Acer	◒	◒	■	◒	◒
Compaq	◒	◒	◒	■	◒
eMachines	◒	◒	■	◒	◒
HP for Business [3]	◒	◒	◒	◒	◒
Lenovo	◒	◒	◒	◒	◒
Sony	◒	◒	◒	◒	◒
iBuyPower	☐	◒	n/a	◒	◒
Gateway	◒	◒	◒	☐	◒
HP for Home [4]	◒	◒	■	☐	☐
Dell for Home [5]	◒	☐	☐	☐	◒
CyberPower	☐	☐	☐	☐	☐

◒ AVERAGE ■ BETTER THAN AVERAGE ☐ WORSE THAN AVERAGE n/a = Not available (too few responses for this manufacturer on this measure). [1] "Dead PC" indicates a failure in one of a system's core components. The six desktop "core components" we counted are CPU, motherboard, RAM, graphics chip, hard drive, and power supply. [2] Dell for Business desktop PCs include the Inspiron, OptiPlex, and Vostro lines, among others. [3] HP for Business PCs include the HP Pro 3000, 3130 Pro, and 500B Microtower, among others. [4] HP for Home desktop PCs include the Pavilion, SlimLine, and TouchSmart lines, among others. [5] Dell for Home desktop PCs include the Inspiron and Studio lines, among others.

ILLUSTRATION (TOP) FLORAFAUNA

Tablets

Though a multitude of competing tablets have entered the marketplace, our results show that the iPad remains miles ahead of the pack in durability, ease of use, and features such as battery life, screen quality, and overall speed. In fact, Apple soaked up almost all of the high scores in those areas, leaving the rest of the field saddled with average or below-average scores on our survey measures.

> I discovered that it's surprisingly complicated to navigate, and many apps won't install.
>
> —ACER TABLET OWNER

WHICH ARE EASIEST TO USE?

EASY

HARD

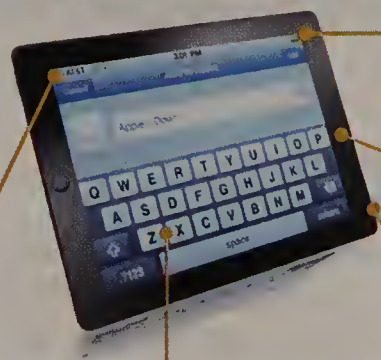
acer

DELL

ViewSonic

Satisfaction

WINNERS & LOSERS



Battery life
Win:
Lose: DELL TOSHIBA

Design
Win: ASUS
Lose: ViewSonic acer

Available ports
Win: TOSHIBA ASUS
Lose:

Overall speed
Win:
Lose: ViewSonic acer

Display quality
Win: SAMSUNG
Lose: ViewSonic DELL

TABLETS: IPAD SEEN AS MOST RELIABLE

BRAND	Problem on arrival	Any significant problem	Severe problem	Overall satisfaction with reliability
Apple	■	■	■	■
Asus	◒	◒	◒	◒
Motorola	◒	◒	◒	◒
Toshiba	◒	◒	◒	◒
Acer	◒	◒	◒	□
Samsung	◒	◒	□	◒
ViewSonic	◒	◒	◒	□
Dell	◒	□	◒	□
HP	◒	□	□	□

◒ AVERAGE ■ BETTER THAN AVERAGE □ WORSE THAN AVERAGE

»

ILLUSTRATION: FLORAFAUNA; PHOTOGRAPH: ROBERT CARDIN

HDTVs

Among our readers, at least, LG seems to have emerged as the brand to beat in the HDTV market. Readers gave LG sets high marks for ease of use and reliability (along with Panasonic), as well as for features such as connection ports and the remote control. Mitsubishi owners, on the other hand, were dissatisfied with their TVs' design, durability, and ease of use.

> I had a problem with a line of dots running down the right side of the screen.
>
> —MITSUBISHI HDTV OWNER

47%

Percentage of people who said they were less than completely satisfied with the speakers in their HDTV. Even among the TV owners who were most satisfied with their set's speakers—those who bought Magnavox HDTVs—31 percent said that they weren't completely satisfied.

Satisfaction

WINNERS & LOSERS

Design
Win: LG, Samsung
Lose: Philips, Insignia

Built-in speakers
Win: Magnavox, Sony
Lose: RCA

Ports
Win: LG, Samsung
Lose: JVC, Panasonic

Remote control
Win: LG, Samsung
Lose: Pioneer, Vizio

Web features
Win: Vizio, LG
Lose: Philips, Panasonic

HDTVs: LG AND PANASONIC LEAD PACK

BRAND	Problem on arrival	Any significant problem	Severe problem	Overall satisfaction with reliability
LG	◒	■	◒	■
Panasonic	◒	■	◒	■
Insignia	◒	■	◒	◒
Sharp	◒	■	■	◒
Samsung	◒	◒	□	■
Magnavox	■	◒	■	◒
RCA	■	◒	◒	◒
Sony	◒	◒	■	◒
JVC	◒	◒	◒	◒
Olevia	◒	◒	◒	◒
Pioneer	◒	◒	◒	◒
Toshiba	◒	◒	◒	◒
Vizio	◒	◒	◒	◒
Westinghouse	◒	◒	■	◒
Philips	◒	◒	◒	□
Mitsubishi	□	□	□	□

◒ AVERAGE ■ BETTER THAN AVERAGE □ WORSE THAN AVERAGE

ILLUSTRATION FLORAFAUNA; PHOTOGRAPH: ROBERT CARDIN

Printers

Our survey results suggest that no printer maker is perfect. Samsung received high marks for its printers' reliability and copy speed, but poor ones for photo and graphics printing quality. Xerox was praised for its machines' printing speed and network connectivity, but bashed for their poor reliability. Only Canon and Brother had strong showings in reliability and service, and in feature satisfaction.

Lexmark 27% VS. **All Brands 14%**

Percentage of Lexmark owners who say they've had a significant problem with their printer in the past year, versus the average percentage for all printer brands.

PRINTERS: NO MIDDLE ON RELIABILITY

BRAND	Problem on arrival	Any significant problem	Severe problem	Overall satisfaction with reliability
Brother	■	■	■	■
Canon	■	■	■	■
Samsung	■	■	■	■
Epson	■	■	■	◒
Xerox	◒	□	□	◒
Dell	◒	□	□	□
HP	□	□	◒	□
Kodak	◒	□	□	□
Lexmark	◒	□	□	□
Ricoh	◒	□	□	□

◒ AVERAGE ■ BETTER THAN AVERAGE □ WORSE THAN AVERAGE

> Reduce the noise. When it prints it sounds like a dinosaur eating a helicopter in my room.
>
> —UNHAPPY HP PRINTER OWNER

PRINTERS: CANON STILL RULES SUPPORT

BRAND	Phone hold time	Web and phone support rating	Problem was never resolved	Service experience
Canon	■	■	◒	■
Lexmark	■	■	◒	■
Brother	n/a	◒	◒	◒
Epson	◒	◒	◒	◒
Kodak	n/a	◒	◒	◒
HP	□	□	□	□

◒ AVERAGE ■ BETTER THAN AVERAGE □ WORSE THAN AVERAGE.
n/a = We received too few responses to rate the company on this measure.

ILLUSTRATION: (TOP) FLORAFAUNA; (BOTTOM) CRYSTAL LEE

Cameras

Among camera brands, Canon and Nikon are this year's co-champs. Readers again rewarded Canon for producing durable cameras, high-quality LCD screens, and attractive images. Nikon owners liked the LCD screen, shutter speed, and picture quality of their cameras, but said that the cameras were relatively hard to use.

WHICH ARE EASIEST TO USE?

EASY: PENTAX, Kodak

HARD: FUJIFILM, OLYMPUS, Nikon

90%

Percentage of Canon owners who are "very satisfied" or "extremely satisfied" with their camera's picture quality.

CAMERAS: CANON WINS ON RELIABILITY

BRAND	Problem on arrival	Any significant problem	Severe problem	Overall satisfaction with reliability
Canon	■	■	■	■
Panasonic	◒	■	■	◒
GE	■	■	◒	◒
Casio	■	◒	◒	◒
Nikon	◒	◒	◒	◒
Olympus	◒	◒	◒	◒
Pentax	◒	◒	◒	◒
Samsung	◒	◒	◒	◒
Fujifilm	◒	◒	◒	□
Kodak	◒	□	◒	□

◒ AVERAGE ■ BETTER THAN AVERAGE □ WORSE THAN AVERAGE

Satisfaction
WINNERS & LOSERS

Shutter response
Win: Nikon PENTAX
Lose: Kodak

Video quality
Win: Panasonic CASIO
Lose: FUJIFILM Kodak

Picture quality
Win: Nikon Canon
Lose: Kodak

Warranty
Win: Nikon Canon
Lose: Kodak

LCD screen
Win: Nikon OLYMPUS
Lose: Kodak

ABOUT OUR RESULTS

MORE THAN 63,000 *PCWorld* readers responded to our online and print advertisements or email messages, and volunteered to participate in our survey. With the help of statistical consultant Ferd Britton, we analyzed the survey data to determine which companies' results were reliably above or below the average of all responses for a particular product type. It's important to note that our survey results don't necessarily reflect the opinions of a given company's customers as a whole. And because our data comes only from *PCWorld* readers who chose to take the survey, our results don't necessarily reflect the opinions of *PCWorld* readers in general. ●

ILLUSTRATION: FLORAFAUNA. PHOTOGRAPH: ROBERT CARDIN

iBUYPOWER Recommends Windows® 7 Home Premium

intel inside
CORE i7
Visibly Smart

GRAB YOUR GEAR PREPARE FOR BATTLE

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Gamer Paladin D875
Intel® Core™ i7-3820 Processor

$1489

- Intel® Core™ i7 Processor
  - 3960X Extreme Edition $2259
  - 3930K $1779
  - 3820 $1489
- Genuine Windows® 7 Home Premium 64-Bit Edition
- Gigabyte® GA-X79-UD3 Motherboard
- NVIDIA® GeForce™ GTX 580 1.5GB Video Card - DirectX 11 Support
- 12X Blu-ray & DVD±RW Combo
- 64GB SSD
- 120mm Radiator Liquid CPU Cooling System
- Corsair Memory 8GB DDR3-1333
- Coolermaster® Enforcer Gaming Case + 800W Certified Power Supply
- iBUYPOWER Premium Keyboard, Mouse & Speakers
- Hi-Definition Surround 3D Premium Sound
- Optional: Nvidia® 3D Vision Glasses & Monitor (+$499)

TRUE USB 3.0 + SATA3

Gamer Paladin D855
Intel® Core™ i7-3820 Processor

$1189

- Intel® Core™ i7 Processor
  - 3960X Extreme Edition $1949
  - 3930K $1479
  - 3820 $1189
- Genuine Windows® 7 Home Premium 64-Bit Edition
- Gigabyte® GA-X79-UD3 Motherboard
- Nvidia® GeForce™ GTX 560 1GB Video Card - DirectX 11 Support
- 12X Blu-ray & DVD±RW Combo
- 64GB SSD
- 120mm Radiator Liquid CPU Cooling System
- Corsair Memory 16GB DDR3-1333
- NZXT® Guardian 921RB Gaming Case + 700W Certified Power Supply
- iBUYPOWER Premium Keyboard, Mouse & Speakers
- Hi-Definition Surround 3D Premium Sound
- Optional: Nvidia® 3D Vision Glasses & Monitor (+$499)

TRUE USB 3.0 + SATA3

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48 Great Mobile Apps

Whether you have an Android, iOS, Windows Phone 7, or BlackBerry smartphone, or an Android or iOS tablet, these cool apps will help you stay organized, save money, be productive, and have fun. **Best of all, most of them are free!**

BY ARMANDO RODRIGUEZ AND GINNY MIES

ILLUSTRATIONS BY MICHAEL BYERS

Navigating app stores can be tricky, with vague descriptions, dubious user reviews, and sometimes buggy apps. So we searched across platforms for the best apps available.

OPERATING SYSTEMS

- Android (Google)
- BlackBerry OS (RIM)
- iOS (Apple)
- Windows Phone 7 (Microsoft)
- * shown with an icon means "optimized for tablets."

TO DOWNLOAD AN app, go to the "More Online" box at the end of this article and use the QR code there to access the download links online.

Keep Track of Everything

LOCALE

$4 Locale lets you create location-based tasks. For example, you can have your phone turn on Wi-Fi when you get home, or have the phone silence itself when you get to work. It's a great way to automate minor tasks, saving you a few extra minutes—and the embarrassment of having an overly noisy ringtone go off in the middle of a meeting.

OMNIFOCUS

$20 The granddaddy of all task management apps, Omnifocus may be a bit pricey but it helps get things done. It's especially good at managing groups of people. You can organize tasks by person, place, or due date. Omnifocus is great for organizing a household's chores or group projects. iOS

SPRINGPAD

Free Create notes and reminders about movies you'd like to see, books you'd like to buy, or just events you'd like to remember. Springpad is also great for putting together shopping lists: You can quickly create checklists and scan barcodes to keep track of items you'll need in the future. * iOS*

WUNDERLIST

Free Wunderlist syncs your to-do lists across all your devices, so you always have your tasks with you. Wunderlist will also email you when you are close to a deadline, in case you don't check the app every day. * iOS*

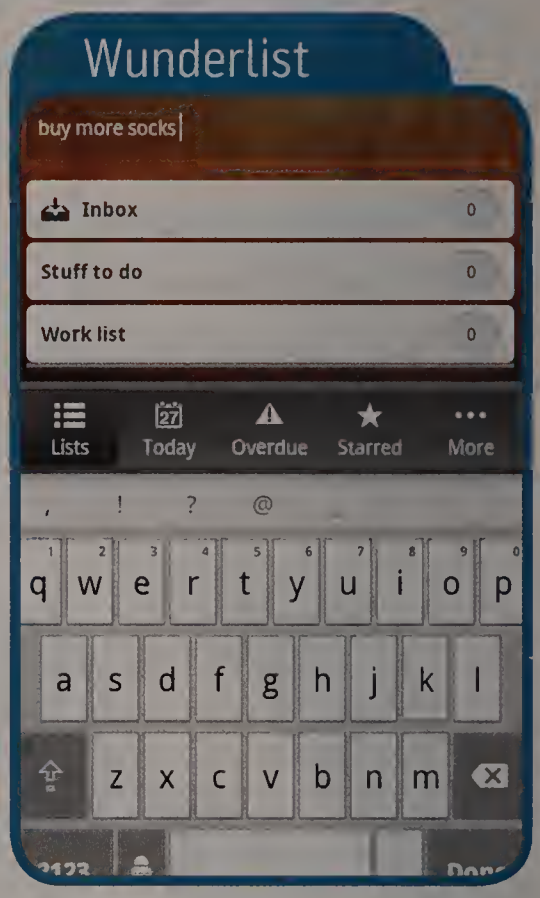
Entertain Yourself

MINECRAFT POCKET EDITION

$7 When you need to kill time on the go, you'll find no better game to play than Minecraft Pocket Edition. Although the app lacks the Survival Mode found in the desktop version, its Create Mode lets you mine and build to your heart's content. *

RECKLESS RACING

$1 Reckless Racing is one of the best-looking racing games available for mobile devices, and it has dozens of courses to choose from, some with hidden shortcuts (a huge advantage if you know them). Then, once you've sharpened your skills, you can challenge friends and strangers to online multiplayer contests to find out who really is the most reckless racer. iOS



SHOWYOU

Free If you love watching Internet videos while on the go, Showyou will quickly become your favorite app. It pulls videos from various sources (sites such as CollegeHumor and Devour) and then displays them on a browsable grid. If you find a video that you particularly like, you can

share it to your social networks, or you can simply save it for viewing at a time that's more convenient for you. iOS*

SONGIFY

Free Songify will entertain everyone by turning what you say into a heavily autotuned song. You can set different beats and purchase new ones from the in-app store. The app was inspired by the work of the Gregory Brothers, creators of YouTube hits such as "The Rent is Too Damn High" and "Can't Hug Every Cat." iOS

STUMBLEUPON

Free StumbleUpon lets you "channel surf" the Web to find things that are relevant to your tastes. You list the topics that you're interested in, and the app will recommend websites to match. On Android devices, it will even recommend other apps based on what you have already installed. * iOS*

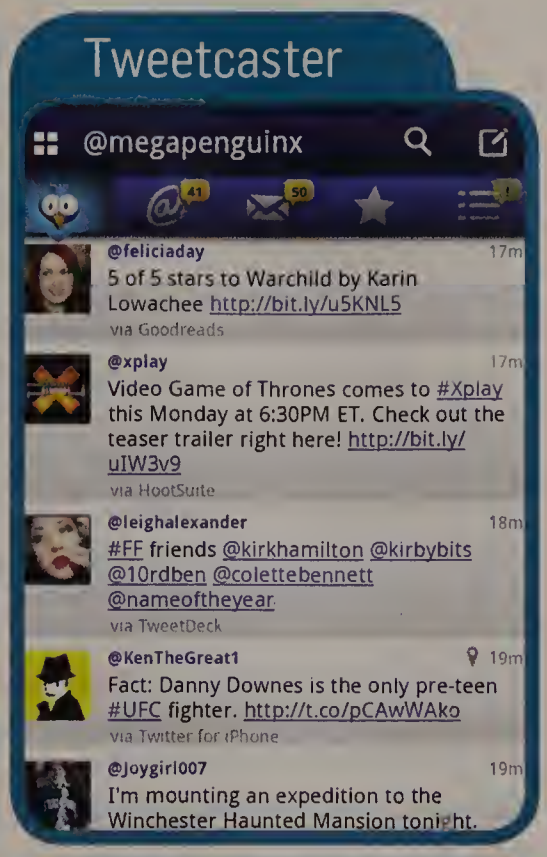
TODDLER LOCK

Free Warning: Eventually your toddler is going to get hold of your phone and wreak havoc upon it. Solution: Toddler Lock can keep the little one entertained but out of your phone's precious contents. It lets your kids scribble and draw on your screen and produces soothing sounds, while locking them out of the main device—settings, data, phone numbers, and the like.

Blog, Tweet, and Tumbl

IMO CHAT INSTANT MESSENGER

Free If you have friends that use a variety of different IM services and you don't want to have to switch between individual apps, IMO Chat will feel like a godsend. It connects to AIM, Facebook Chat, GTalk, and Yahoo (and a few others); it also permits you to be signed in to multiple accounts at once. IMO Chat is great for chatting with coworkers on GTalk, while saying hello to friends on Facebook. * iOS* BlackBerry



TUMBLR

Free A must-have for avid users of Tumblr, the posting and sharing site, this app lets you blog no matter where you are. You can upload pictures, videos, and audio, or compose a post just as if you were on the website. iOS

TWEETCASTER FOR TWITTER

Free Tweetcaster is a colorful and cartoony app that lets you update and view your Twitter and Facebook accounts. If one of your friends likes to blast several hundred tweets at once, you can temporarily hide those tweets until you see fit. The app can also show you tweets for local happenings. * iOS*

WORDPRESS

Free This app lets you manage multiple blogs from your mobile device. You can view blog comments, create new posts or pages, and even get stats on visitor numbers. The app is especially handy if you run several websites and need to check on them. * iOS* Windows

Protect Your Phone

LOKY

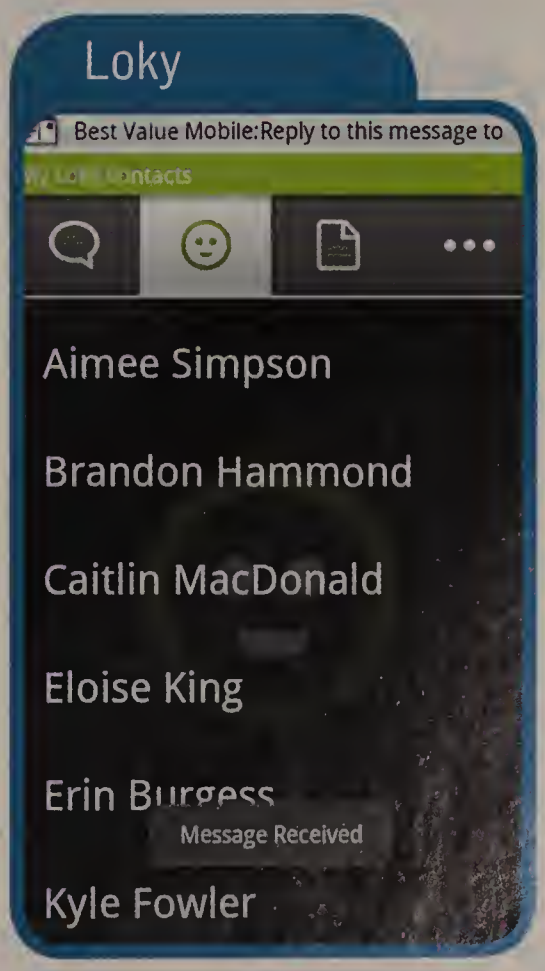
$5 If you have confidential data on your phone, Loky could keep that info safe. The app is password-protected, and you can use it to store vital documents, revealing text messages, or incriminating photos. Loky will even keep a log of logins—this record would help you know if someone was trying to get at your private data.

LOOKOUT PRO

$3/month or $30/year A useful app for any Android or iOS smartphone, Lookout Pro protects your phone from malware and phishing scams, tracks the device if it ever goes missing, and enables you to back up your information remotely in the event that you can't get your phone back. * iOS

MY BACKUP PRO

$5 We are always told to back up our PCs, but what about our phones? My BackUp Pro will back up your entire device—app data, pictures, contacts, and more—onto an SD Card or to a remote server. If your handset breaks or if the internal storage is corrupted, you can perform a restore from the card backup and be ready to go. If your »



phone is stolen or something happens to your SD card, you can also restore your data using the server backup.

WEBROOT SECUREWEB

Free This app is a mobile browser that has your back. It labels which sites in Google search results are safe to visit, and it alerts you when you're visiting a site that's trying to steal your personal information. iOS*

Save While Shopping

AMAZON MOBILE

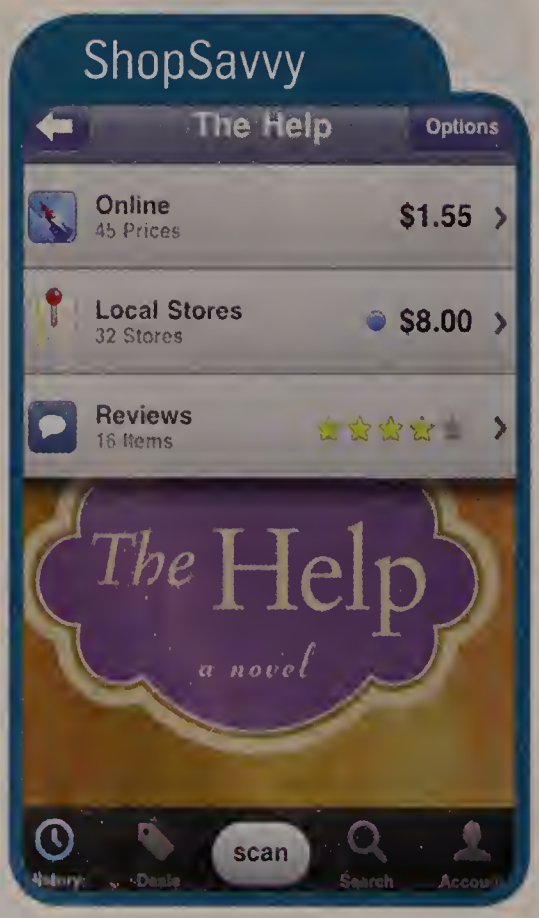
Free With its barcode scanner and other price-comparison tools, this app is a must-have for smart shoppers.
iOS*

BROWSING FOR ETSY

Free Turn your iPad into the ultimate vintage- and craft-shopping companion. Search through Etsy's huge catalog of uniquely awesome goods by filtering for price or color. iOS* **(iPad only)**

SHOPSAVVY BARCODE SCANNER

Free ShopSavvy turns your phone into the ultimate barcode scanner. You can scan UPC, EAN, and QR formats on a product, find out its price at that store, and compare that with the prices at other stores and sites. If you see a better deal online than in-store, you can buy directly from the ShopSavvy app.
iOS



Take Better Photos

CAMERA+

$1 The iPhone 4S's camera may have improved on its predecessor's, but it still lacks some advanced features. Camera+ fills in the gaps: It assembles a ton of useful shooting and editing tools such as an advanced digital zoom, a photo brightener, touch exposure, focus controls, and a stabilizer. iOS

CAMERA 360

Free This heavy-duty camera app takes some time to learn, but once you get the hang of it, you'll be able to take some seriously stellar snapshots. You can add frames or scenery to your photos, as well as apply filters (such as Lomo, Retro, and HDR styles).

LIGHTBOX

Free Lightbox is Android's answer to the Instagram app for the iPhone: Take a picture, and the software automatically uploads the image to your Lightbox online account. You can add filters to your photos, such as Lomo, black and white, or other retro styles, though the available filters are a bit limited. *

MAGICHOUR

$2 With MagicHour, you can transform your photos into art by choosing from its 40 available photo filters (everything from Emo to Postcard). You can also download even more filters (for free) or create your own. iOS

PICPLZ

Free An alternative to Instagram, Picplz also gives you the ability to apply filters to the photos you take, and upload those photos onto Facebook or Twitter. You can follow other Picplz users and add your favorite photos to a collection. Picplz will appeal to social shutterbugs who love to share their photos online.
iOS BlackBerry

Know It All

ARTICLES

$3 Articles takes Wikipedia and cleans it up to resemble a stack of papers. Though it limits you to searching Wikipedia only, Articles does permit you to have multiple Wikipedia pages open at the same time. This arrangement enables you to jump quickly from one article to another without having to search for the original article again. iOS*

DICTIONARY.COM

Free Perfect for anyone who can't stand spelling errors, this app can help you make sure that you never misspell another word. It can also read words back to you aloud (in case you don't know how to pronounce them), and it has a thesaurus mode, as well.
iOS* BlackBerry

THE WORLD BY NATIONAL GEOGRAPHIC

$4 This gorgeous app, optimized for the iPad, is a modern take on the classic spinning-globe map. Whirl the globe, tap on a country, and be whisked away on a photographic journey through *National Geographic*'s archives. iOS* **(iPad only)**

WIKIPANION

Free Wikipanion formats Wikipedia articles so that they fit better on your phone or tablet screen. The app supports other wikis as well, and if one of your favorites isn't listed, you can ask the developers to add it. Wikipanion can

use your current location to find Wikipedia articles about places nearby—a capability that can be particularly useful when you're traveling. iOS*

WOLFRAM ALPHA

$2 Wolfram Alpha gives you vastly more information than a simple Google search ever could. The app can help with balancing chemical reactions as well as solving advanced trigonometry problems. And if that's not your thing, you can use it find out how much wood a woodchuck would chuck if a woodchuck could chuck wood. iOS*

Manage Your Money

GROUPON

Free Purchase, manage, and redeem Groupon deals directly from your phone. This mobile version of Groupon also lets you share deals with your friends so all of you can take part in that killer all-you-can-eat pizza deal. iOS* BlackBerry

MILEBUG

$2 A must-have app for business travelers and jetsetters, MileBug helps you track your business and personal driving expenses. Turn on GPS tracking, and the app will note exactly how long your trip was and translate that mileage into a dollar amount. iOS

PAGEONCE MONEY AND BILLS

Free PageOnce lets you pay your bills, keep track of your accounts, and instantly see your most recent purchases and deposits. You can also schedule real-time alerts when bills are due so you'll never miss an important payment. iOS* BlackBerry

Plan Your Vacation

GOOGLE TRANSLATE

Free Despite taking four years of German in high school and listening to nothing but your Rosetta Stone tapes on the plane, when you finally arrive in Munich, you completely blank on the word for *restroom*. Google Translate to the rescue: Type or speak a word in English, and get an immediate translation in over 30 languages. iOS

HIPMUNK

Free Finding the perfect (and most affordable) flight for your vacation can be tedious, but Hipmunk alleviates some of the pain. The app presents flights on a timeline and cleverly sorts them by agony level, taking into account how long you'll be traveling and how many stops you'll make. iOS*

KAYAK

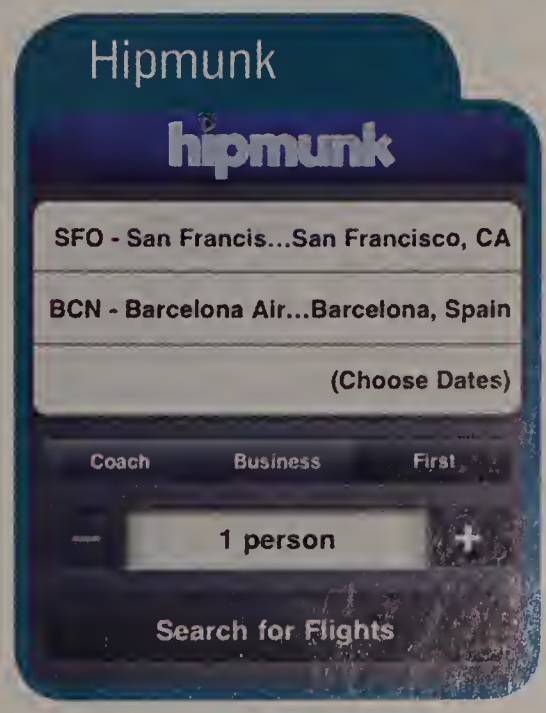
Free Kayak is your one-stop app for vacation planning: Book a flight, rent a car, find a hotel, and track your flight. Kayak compares hundreds of travel sites at once so you know you'll get the very best deal on your well-deserved trip. iOS* BlackBerry

LOCALICIOUS

Free Powered by the White Pages, Localicious gives you the scoop on the best nearby restaurants, bars, stores, salons, and more. It automatically detects the neighborhood you're in and displays the places currently most popular via its Foursquare integration.

POSTCARD ON THE RUN

Free Sending your friends and family digital photos from your tropical vacation is nice, but sending a customized postcard is so much cooler. With Postcard on the Run, you can instantly send trip photos taken with your iPhone or Android phone as real, physical postcards with personalized messages to any address in the world. Although the app is a free download, you will have to pay the service an additional amount »

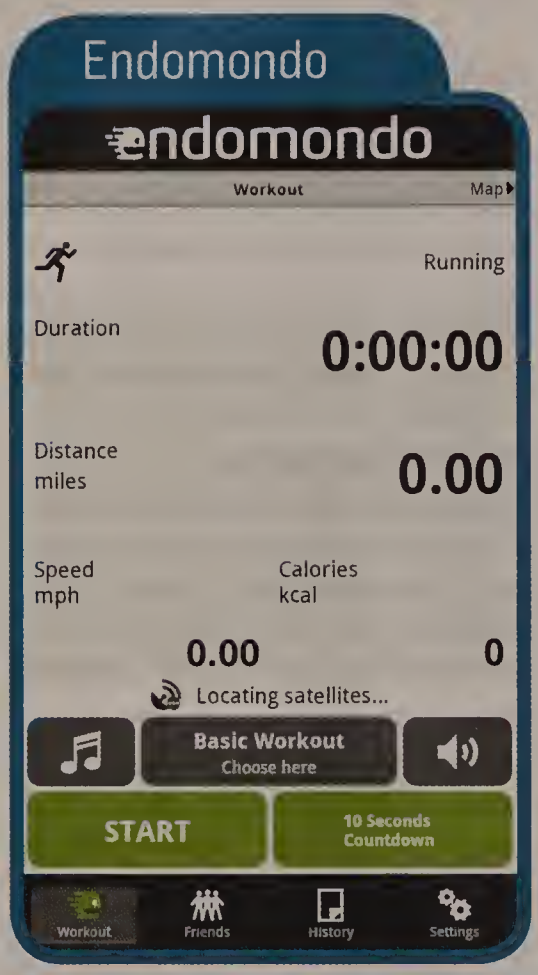


for postage, which will range from $0.99 to $1.69 per postcard.

TELENAV

$10/year for premium version

Google Maps may be one of the best navigation apps, but iPhone and BlackBerry owners miss out on its turn-by-turn directions. Enter TeleNav, which offers those directions; it also helps you find cheap gas prices nearby, discover local restaurants, and view 3D maps.



Get Into Shape

CALORIE COUNTER

Free Calorie Counter keeps track of what you are eating and even suggests healthy recipes to keep you away from fatty fast food. The app first asks you a series of questions to determine what kind of diet is right for you.

DRINKING WATER

Free The amount of water you drink plays a major role in weight loss. But it can be hard to remember to drink your eight glasses per day. This app makes meeting that requirement easy by showing how many glasses you've had and how many you have left to go; it even shows a graph of how often you've met your water consumption goals.

ENDOMONDO SPORTS

Free Whether you're into baseball, dancing, or orienteering, Endomondo Sports can help you track your physical activities. It will show you how long you've done your activity, how far you've gone (distance-wise), and how many calories you've burned.

IMAPMYFITNESS

Free iMapMyFitness uses GPS to track your fitness activities, such as running or cycling. You can record distance, pace, duration, speed, elevation, and calories burned for each workout. You can also upload your fitness data to MapMyFitness.com, and challenge friends to virtual races.

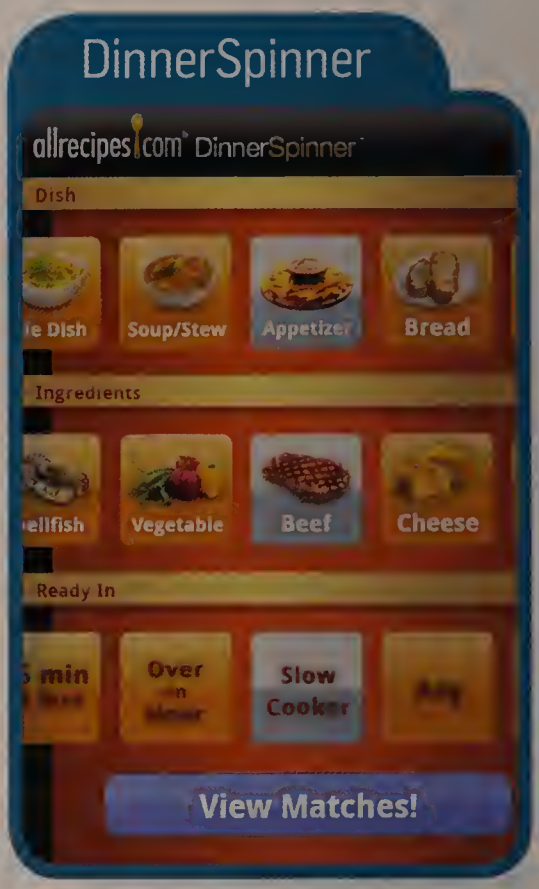
WORKOUT TRAINER

Free A few weeks with Workout Trainer should leave you feeling fit. The app invites you to choose among workouts of different intensities and lengths. While you're exercising, Workout Trainer will give you motivational advice. You can track your progress through Skimble.com (the source of the app) and race friends and other Skimble users.

Eat Better

ALLRECIPES.COM DINNERSPINNER

Free This app lets you search for meal options by dish type, ingredient, and desired "ready" time. The highlight, however, is the Shake for Ideas feature: Shake your phone, and get a random selection of dishes and ingredients.



HOW TO COOK EVERYTHING

$5 This app, based on *New York Times* columnist Mark Bittman's book of the same name, gives you access to some 2000 recipes, plus straightforward cooking advice, how-to illustrations, ingredient information, built-in timers, and organized shopping lists. Note: Noncarnivores can opt instead for the How to Cook Everything Vegetarian app for the same price.

MORE ONLINE

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WHOLE FOODS MARKET RECIPES

Free In the Whole Foods app you can find creative recipes using what you have on hand, and see them in an easy-to-read interface, with nutritional info. Dietary restrictions? No problem. You can search for gluten-free, low-fat, and vegan/vegetarian recipes by course or type of food (sandwiches, soups, entrées, side dishes, and so on).

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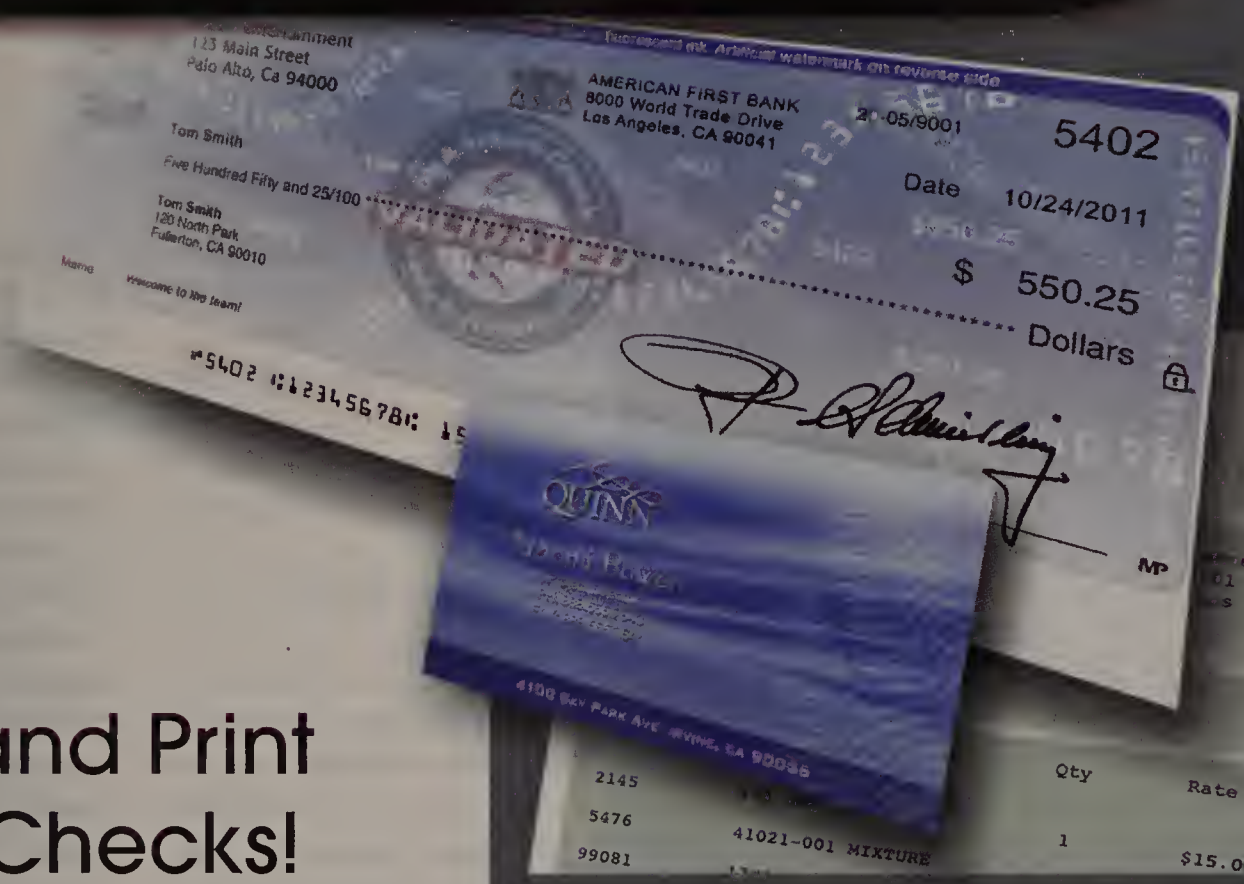

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Here's How

How to Build a Compact Gaming PC

You can construct a high-performance gaming system in a small box, suitable for carrying to LAN parties or gaming in small spaces.

BY LOYD CASE

GOING TO A LAN party? You don't have to lug around a desktop or settle for a subpar laptop. I'll show you how to cram the guts of a gaming PC into a slim case with a MicroATX motherboard.

Choosing the Case and Power Supply

I used In Win cases years ago, but moved on as other companies produced more interesting designs. Recently, though, In Win has been making seriously good cases suitable for gaming PCs. The In Win Dragon Slayer is one example: It looks like a full tower case that someone has shot with a shrink ray, yet it's still deep enough for large graphics cards.

Admittedly, working inside it is a pain due to the restricted space. For instance, the hard-drive bay sits across from the power supply unit, a position that effectively limits the size of the PSU to a 6-inch depth. I chose a Corsair AX750, a 750W, 80-plus-gold-certified power supply with a standard size of 6.0 by 6.0 by 3.5 inches. Even with a standard power supply, however, routing cables is something of a chore. Fortunately, the Dragon Slayer is wide enough to allow cable routing behind the motherboard tray, which mitigates the clutter a bit.

One other minor issue is that the front-panel USB 3.0 connector requires you to route a cable out the rear of the case and plug it into a USB 3.0 back-panel connector on the motherboard.

Selecting the Motherboard

When I set out on this project, the limiting factors were size and power consumption,

not cost. I also wanted an overclocking-friendly, gamer-oriented motherboard. So I settled on the Asus Maximus IV Gene-Z, a premium-quality MicroATX board built around an Intel Z68 chipset, four memory sockets, and the usual host of features you'd expect in a high-end gaming motherboard—except size.

And the Gene-Z isn't pricey. It hovers around $170, which is more than most MicroATX boards cost, but less than standard ATX boards of the same class do. It offers on-board reset and power switches, a robust BIOS, a high-end power-supply section, and plenty of USB ports (including USB 3.0).

Also on the board is a rich set of connectors, including digital video outputs if you want to take advantage of the Intel Z68's graphics virtualization, developed by LucidLogix. Virtu, as the feature is called, lets you use a high-end discrete graphics card but connect the display to the integrated graphics built into Intel Sandy Bridge CPUs. As a result, the system will run the low-power-consumption Intel HD Graphics for normal desktop use, but the high-end GPU will kick in for gaming.

The Gene-Z includes Creative Labs THX TruStudio Pro software audio enhancement. TruStudio Pro is one of the few software-based audio enhancements I find pleasing, and it offers a somewhat broader sound stage.

The board also has room for a large aftermarket CPU cooler. I didn't use a high-end cooler with the system, but that's because I planned on only modest overclocking.

Choosing the CPU and RAM

While the sweet spot for most gaming systems is an Intel Core i7-2500K CPU, I selected a Core i7-2600K. The additional base clock, plus Intel's Hyper-Threading, makes this system useful for more than just play.

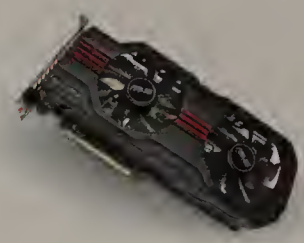
A good motherboard and a good CPU deserve good memory. I wanted DDR3 that I could rely on to run at 1600MHz, since I wasn't planning on higher memory clocks. Corsair's 8GB Vengeance DDR3 kit fit the bill nicely, and it costs less than $60. Fast DDR3 is an incredible value these days.

Picking the Graphics Card

Although I wanted to build this PC with no set budget, my goal wasn't to construct a machine with an unlimited budget. And since it's a MicroATX PC, other constraints influenced my choices, »

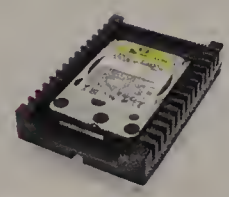
Total Cost of Components: **$1650**

Case
In Win Dragon Slayer **$65**



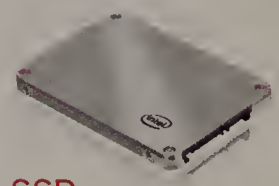
Graphics Card
Asus GTX 570 DirectCU II **$350**

Power Supply
Corsair AX750 750W **$170**



Hard Drive
Western Digital VelociRaptor 600GB **$220**

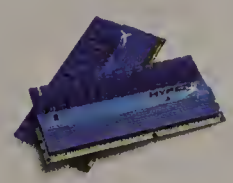
Motherboard
Asus Maximus IV Gene-Z **$170**



SSD
Intel 311 solid-state drive 20GB **$115**

CPU
Core i7-2600K **$315**

DVD-RW Drive
Lite-On iHAS124 **$20**



RAM
Corsair 8GB Vengeance DDR3 **$60**

Operating System
Windows 7 Ultimate **$165**

including those for power and cooling. I also wanted a graphics card that made little noise, didn't consume excessive power, and could handle most modern games.

Enter the Asus GTX 570 DirectCU II, which is available for about $350. The first thing you notice is that this graphics card is three slots wide; that's due to the beefy cooling section. Asus has also removed one integrated circuit (included in most GTX designs) that limits its maximum power draw. This tweak allows users to set the voltage to whatever they deem appropriate. (Bear in mind, however, that without the voltage limiter you can wind up killing the card.)

Asus offers an overclocking tool called SmartDoctor, but it's pretty crude. If you really want to overclock the card, go to the website for Asus's high-end Matrix GPU series, select the downloads for your Windows version, and look under 'Utilities' for GPU Tweak. Although this tool was designed for the Matrix GTX 580 series, it will work just fine with your 570.

If you simply want to push the clock speed higher, GPU Tweak automatically adjusts the voltage. The PC will end up consuming more power, but that's why you build in a 750W PSU—for wiggle room.

Adding Storage

Of course, you need lots of fast storage for your games.

On the optical side, all you really need for a gaming rig is an inexpensive DVD burner. The Lite-On iHAS124 gets the job done, and costs $20.

As for the bulk of the storage, my first inclination was to use a pure solid-state drive configuration, but buying enough space for games would have almost doubled the price of the PC. Thankfully, one cool aspect of the Z68 chipset is its support for Intel's Rapid Storage Technology SSD caching. You drop in a small SSD and configure the system for RAID support, and the SSD acts as a huge cache for the hard drive.

So I paired a fast, 10,000-rpm Western Digital 600GB VelociRaptor hard drive ($220) with a 20GB Intel 311 SLC-based SSD ($115). The net result: much faster boot and application-load times than I would have seen from a VelociRaptor alone. If I had built in 600GB worth of SSDs, they would have cost me $800 or more.

If you crave more capacity, a 2TB, 7200-rpm drive costs about $150, and you'll see nearly the same performance due to the SSD cache.

A GAMING PC BUILT TO IMPRESS

GAMING BENCHMARKS	Frame rate
Far Cry 2 (Ranch Long; 1920 by 1200, 4xAA)	109 fps
Dawn of War II: Retribution (1920 by 1200, 4xAA)	81 fps
S.T.A.L.K.E.R.: Call of Pripyat (1920 by 1200, tesselation, 4xAA, shadows, SSAO)	60 fps
Dirt 3 (1920 by 1200, 4xAA)	54 fps
Just Cause 2 (Concrete Jungle; 1920 by 1200, 4xAA)	54 fps
Aliens vs. Predator (1920 by 1200, 4xAA)	36 fps
Unigine Heaven 2.1 (1920 by 1200, 4xAA)	28 fps
Metro 2033 (1920 by 1200, 4xAA)	19 fps
POWER CONSUMPTION	**Draw**
System idle	71 watts
System at maximum	231 watts

CHART NOTES: Based on standard clock speeds. 4xAA = 4x antialiasing; fps = frames per second.

Performance and Overclocking

Even though overclocking is easier than ever, keep in mind that it remains a crapshoot. I've always been content to run my systems at standard CPU clock speeds. I have pumped up memory clocks, though, since DDR3-1600 is so affordable now—tweaking memory bandwidth is sometimes more useful than bumping CPU speeds.

Let's look at the results for the PC I built, based on the standard clock speeds for the CPU and GPU; check out the chart to the left.

Metro 2033 is a demanding game, so hitting almost 20 frames per second in DirectX 11 mode with 4x antialiasing and all details pumped up is pretty impressive. In most games, the PC runs in excess of 30 fps, and over 60 fps in some titles.

In practical terms you might see a 2 to 4 percent increase in the frames-per-second performance of most games; whether that's worth risking an overclock depends on your situation. If my PC always resided in my home, in a controlled environment, I'd probably keep the overclocks. If I wanted to carry it around to LAN parties, though, I'd stick with default clock speeds for safety.

The Price of Glory

So how much does this system cost? On the previous page, you can see how the components add up. That $1650 price tag (before shipping and tax) includes Windows 7 Ultimate OEM, which I picked mainly because the 16GB limitation of Windows 7 Home Premium is starting to sound a little restrictive. With 8GB memory modules starting to ship, the Gene-Z motherboard could theoretically support 32GB, though 16GB is probably a more practical ceiling.

From the editors of **PCWorld**

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Change DNS Servers to Improve Internet Speed

Learn how to find the fastest, most reliable Domain Name System servers in your area and use them to enhance your Web browsing.

MANY FACTORS AFFECT a broadband Internet connection's overall performance. One of the least-understood factors is the user's Domain Name System server.

The DNS translates more-easily remembered domain names into numeric IP addresses. For example, when you enter **www.pcworld.com** in a browser, your system checks its DNS resolver; if the IP address isn't cached, your system requests it from DNS servers until one gives the address (in our example, 70.42.185.10). If the request fails at one name server, you have to wait as your system asks another name server.

Your ISP likely assigns DNS servers for your connection. But depending on your ISP and location, you may find that they're underperforming or unreliable. As a result, some sites take too long to load (if they load at all), and email is flaky.

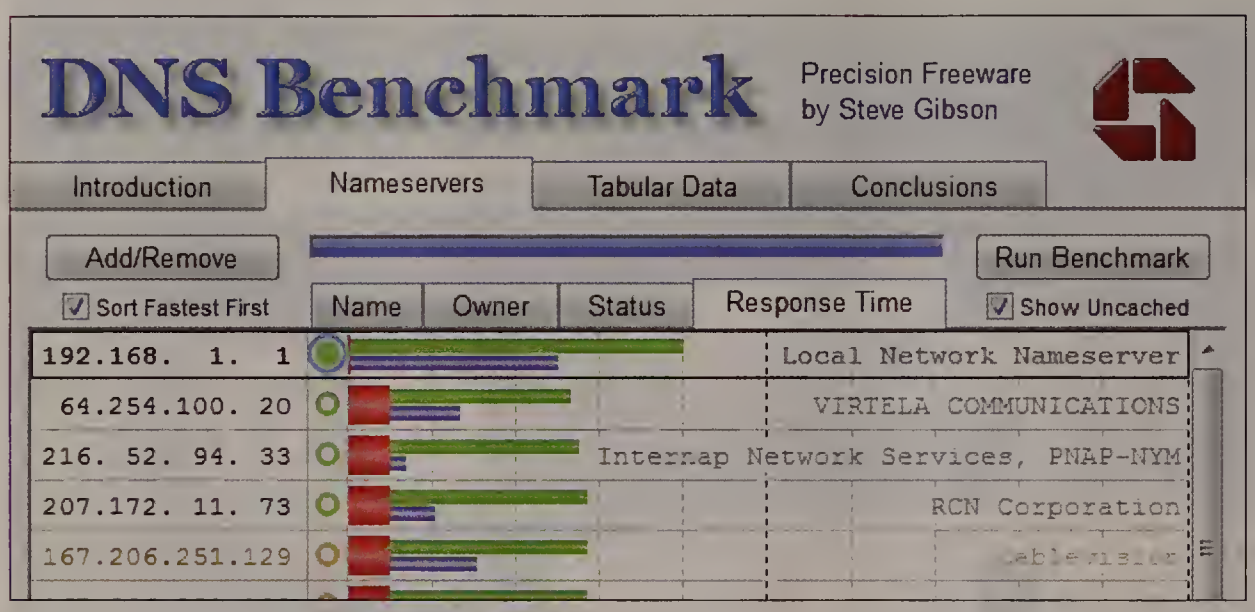
Find Fast DNS Servers

You can use public DNS servers in their place. Start by downloading the open-source Namebench (find.pcworld.com/72402) and GRC's DNS Benchmark (find.pcworld.com/72403). I suggest running both to see whether they yield consistent results.

In Namebench, make sure that the *Include global DNS providers* and *Include best available regional DNS services* options are selected, confirm your location, and click *Start Benchmark*. The tool will run a few tests.

In DNS Benchmark, click the *Nameservers* tab and the *Add/Remove* button. In the Edit DNS Server IPs window, click *Build Nameserver Custom List*. In the resulting pop-up box, click *Build Custom List*, and wait about 40 minutes for the process to complete. When the list is done, click *Run Benchmark* on the Nameservers tab.

In both tools, the servers with the fastest response times should offer the best performance. Make note of the top three IP addresses.



THE FREE DNS Benchmark can help you find the speediest Domain Name System servers.

Configure Your PC

To set Windows 7 to use your preferred name servers, first click the *Start* button, type **Network Connections** in the Search box, and press **<Enter>**. You must configure the DNS settings on all of the system's active network connections; each active network adapter will have the network name listed beneath its name and won't have a red X in its icon. Right-click the active adapter, and select *Properties*. On the Networking tab, highlight *Internet Protocol Version 4 (TCP/IPv4)*, and then click the *Properties* button.

Under the next window's General tab, click *Use the following DNS server addresses*. In the Preferred field, enter the IP address of the fastest DNS name server (according to the benchmarks); in the Alternate field, enter the second-fastest name server. Click *OK* in that window and *OK* again in the network properties window. Close the network connections list, and restart the PC.

Configure Your Router

To make all your networked systems (regardless of OS) use the same servers, you must change router settings. Here are the basics; see your manual for specific steps.

In your Web browser, type **192.168.0.1** or **192.168.1.1** in the address bar. If neither one works, select *Control Panel•Network and Sharing Center•Change adapter settings*; double-click the active network connection, click *Details*, and find the address under 'IPv4 Default Gateway'. Take that address, add **http://** in front, and paste it into your browser's address bar.

Log in to the router. (Check your manual for the proper credentials.) Click *Basic Setup* or *Network Setup*, and look for a section named 'Network Address Server Settings (DHCP)' or the like. There, enter the IP addresses for the fastest DNS servers in your area. Save the changes, and then restart the router.

—Marco Chiappetta

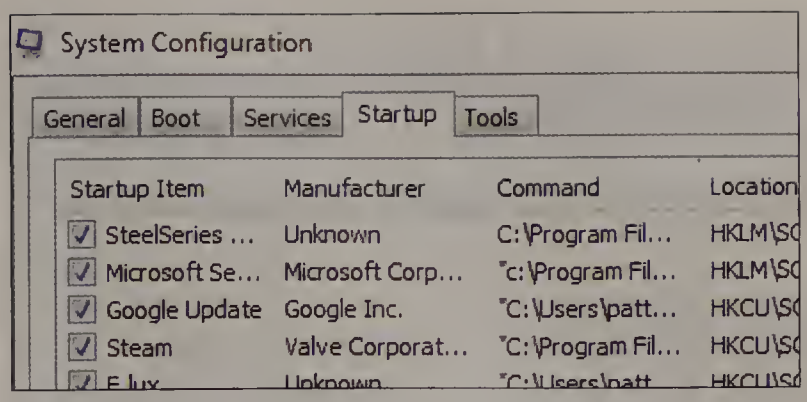
Remove Icons From the Notification Area

HAVE YOU EVER wanted to remove icons, specifically those for unused programs, from the lower-right corner of the Windows screen?

That collection of icons is called the system tray, the systray, or the notification area. But they aren't just icons; they're running programs that use RAM, clock cycles, and so on. Each one is slowing down your PC a bit. They might also be conflicting with other software, making Windows less stable.

Some of these programs are worth such potential problems. For instance, you need an antivirus app's real-time malware protection.

To remove icons for programs you don't use, however, your best bet is to uninstall the unwanted software itself. If you don't recall the app's name, point your mouse at its icon, and information should turn up. Or right-click the icon for a menu.



UNCHECK UNWANTED PROGRAMS in Windows' Startup tab.

Once you know the name, click *Start*, select *Control Panel*, and click *Add or Remove Programs* (XP) or *Uninstall a program* (Windows 7 or Vista). Then select the unwanted program, and click *Remove* or *Uninstall*.

If uninstalling doesn't zap the icon, click *Start* (in XP, *Start•Run*), type **msconfig**, and press **<Enter>**. Click the *Startup* tab to see a list of programs that load automatically when you boot. Find the culprits there, and uncheck them. (This is also what you should do if you prefer to keep the program installed, but don't want it running at all times.)

—Lincoln Spector

Enable Safe Mode in Win 7

WHEN A PC goes haywire and the operating system can't start, the problem often involves misconfigured software or drivers. Luckily, Microsoft includes a tool in Windows called Safe Mode, a bare-bones version of the OS designed for troubleshooting. To enter Safe Mode, take these steps:

1 Turn on (or reboot) the PC. Wait for it to initialize the hardware and prepare to load the operating system.

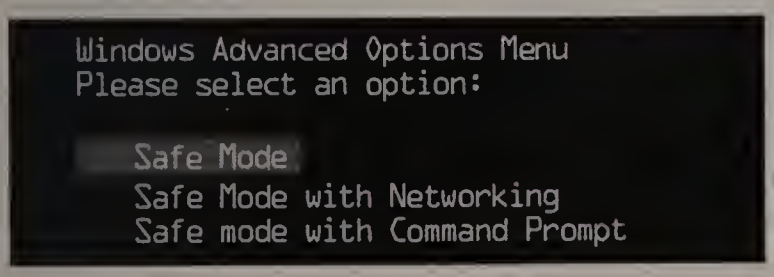
2 Press and hold the <F8> key. If the Windows logo appears or if the operating system begins to load, you may need to restart the computer and try again.

3 The Advanced Boot Options screen for Windows should appear. Use the arrow keys on your keyboard to select *Safe Mode*, and press <Enter>. If you know that you'll need access to the Internet or network while in Safe Mode, select *Safe Mode with Networking*.

4 The desktop will display 'Safe Mode' in all four corners. Proceed with troubleshooting. When you're done, click *Start•Shut Down•Restart* to reboot your PC normally.

5 If the Windows problem persists, you may need to reenter Safe Mode or try something more drastic.

—Michael King



FIND SAFE MODE in the Advanced Boot Options menu.

Clean Your Laptop or Desktop LCD Properly

WHEN IT COMES to cleaning an LCD screen, there's a right way and a wrong way. Let's focus on the right way (natch).

For starters, turn your monitor off. In fact, to eliminate any risk of shock or electrical damage, unplug it. (Better safe than sorry.) This cleaning will involve some moisture, and the last thing you want is for liquid to contact anything powered.

Dampen a clean, soft cloth (a paper towel will do, but it isn't the best choice) with water. Don't soak it—just moisten it. And don't use anything other than water. Ammonia- and alcohol-based cleaners can ruin an LCD. If plain water doesn't do the job, make a 50/50 solution of distilled water and white vinegar.

If you decide to use a spray bottle, don't spray directly on the screen. Instead, spray the water or solution onto the cloth, and then wipe the screen. Use a circular motion, which is best for eliminating streaks, and apply only light pressure.

Finally, let the screen air dry for a few minutes, or gently wipe it dry with a fresh cloth. Only when you're absolutely certain it's 100 percent dry, plug it back in and turn it on.

—Rick Broida

ANSWER LINE

Should I turn my PC off every night, or leave it on? —*Atrrocket*

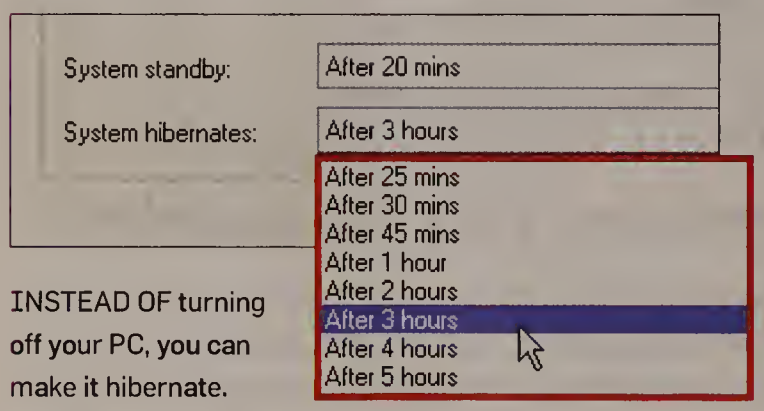
LINCOLN SPECTOR

CALL ME A tree hugger if you must, but I see no reason to keep a computer on when it's not in use. Wasting electricity is bad for your pocketbook and bad for the planet—and it's probably bad for the PC.

Yes, on occasion I have read arguments insisting that shutting down a PC, and then starting it up cold, causes more wear and tear than leaving it on for 12 hours. I just don't buy them. All computers are at risk of suffering from heat problems, and one that never gets a chance to cool down will be under more heat stress.

Besides, a computer that's turned off is a computer that can't catch a malware infection (or if it has already been infected, it can't behave under orders sent from afar).

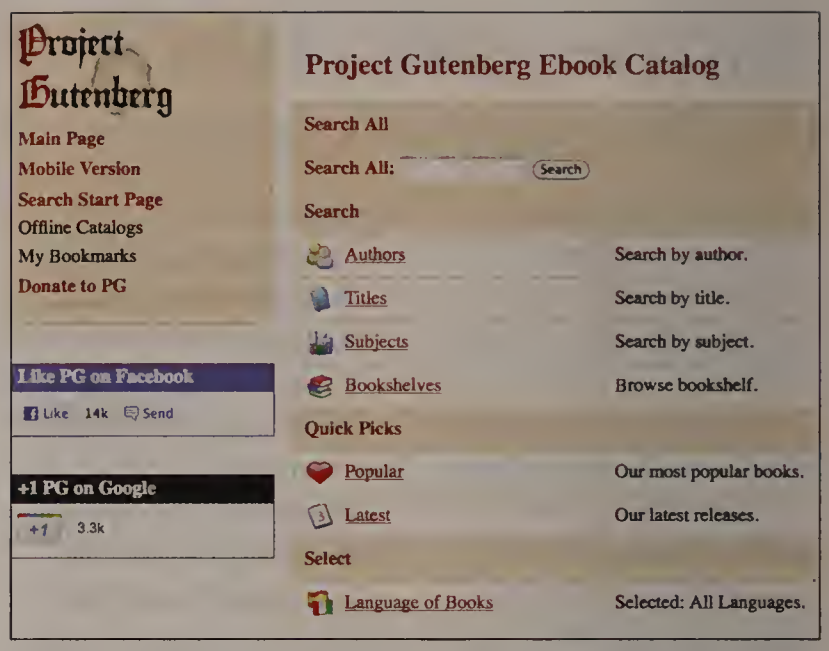
If you don't like to start your computer fresh at the beginning of each day, you can hibernate it rather than shutting it down. From the hardware and power-consumption points of view, there's no difference between shutting down a PC and hibernating it. But there is a difference in what happens when you boot up the machine again in the morning: A shut-down system will give Windows a fresh start, clear of any digital cobwebs it may have acquired since its last boot. A hibernated PC will wake up where you left it, with the same programs, files, and windows open.



INSTEAD OF turning off your PC, you can make it hibernate.

For more about hibernate mode—and sleep mode, a short-term power-saving option—see *Answer Line* on page 110 in the December 2011 issue, or go to find.pcworld.com/72361.

Which mode you use is a matter of personal preference, although you should probably shut the computer down at least once a week to clear those cobwebs.



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—*Michael King*

Use DOSBox to Play Classic PC Games

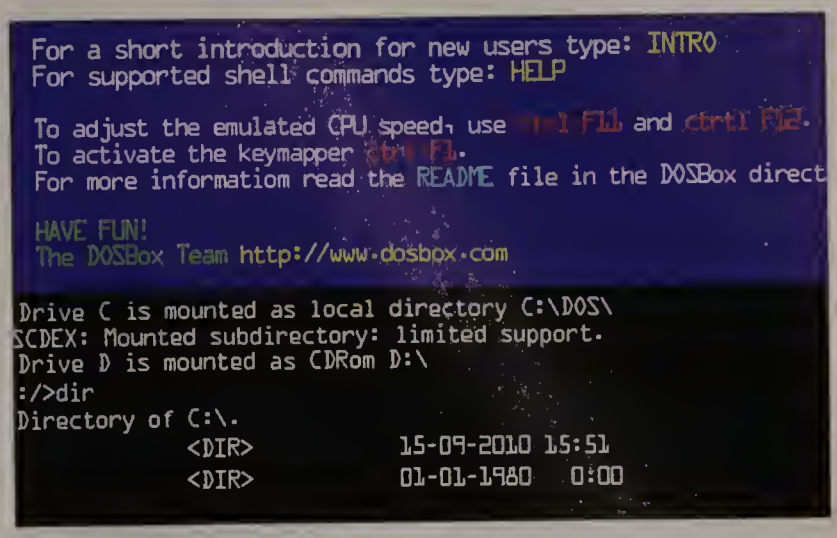
IF YOU WANT to make your classic (pre–Windows XP) games run on a modern PC, you'll have to become familiar with DOSBox, a fully configurable DOS PC emulator.

Head to find.pcworld.com/72362 and pick up a copy for your operating system. I've based this guide on DOSBox version 0.74 for Windows.

Install DOSBox anywhere. Next, set up a folder for your games with a short name, such as **C:\DOSGAMES**, and create a separate folder in that directory for each game. In the days of DOS, all files had to have eight characters before the period and three after, so for simplicity's sake keep your filenames at eight characters or less.

Now you need to mount the C:\DOSGAMES folder as a virtual hard drive. Double-click the *DOSBox* executable in your Start menu, and type **mount c c:\dosgames** at the Z:\ prompt to tell DOSBox to treat the C:\DOSGAMES folder as the root C:\ drive.

Type **c:** at the Z:\ prompt. This action will put you in the C:\ drive (C:\DOSGAMES, actually), and from there you can navigate to any game directory by typing **cd** (for "change directory") plus the folder name. For example, if you have Duke Nukem 3D in C:\DOSGAMES\DUKE3D, you can play that game by typing first **cd duke3d** to go to the folder and then the name of the executable (in this case, **duke3d**) to run it.



A FEW TWEAKS will enable DOSBox to see your game folders.

You must remount the right directory every time you start DOSBox. But here's a shortcut: Open the dosbox.conf file in your DOSBox directory, scroll to the '[autoexec]' section, and add the lines:

mount c c:\dosgames
c:

That way, DOSBox will default to your game folder every time you start it up.

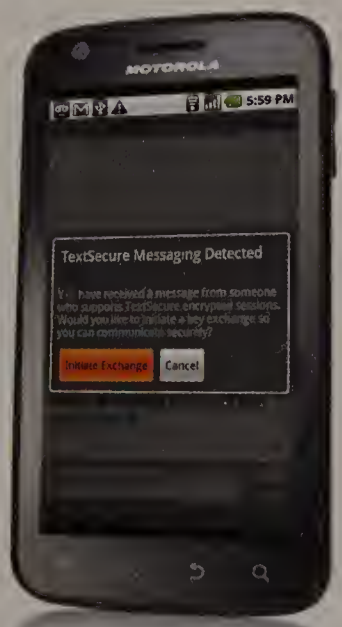
—Alex Wawro

EASY HACK: ENCRYPT YOUR ANDROID SMARTPHONE

MOST MODERN ANDROID phones do not have data encryption built into their hardware, which means that you have to rely on third-party apps to secure your text messages, email, and other critical communications.

Thankfully, you have plenty of app options to choose from. One of the most promising is WhisperCore (find.pcworld.com/72376), a phone encryption app from Whisper Systems that can encrypt your phone's flash memory and even create encrypted backups in case your phone falls into the wrong hands and you have to perform an emergency data wipe. The app is still in beta, however, and it works only with the Nexus S and Nexus One handsets; we're hoping that the Whisper team is working hard to extend this awesome app to cover more hardware.

Alternatively, Android owners can selectively encrypt specific files and folders stored on their phones by using an app such as Droid Crypt (about $3; find.pcworld.com/72377) or AnDisk Encryption ($4; find.pcworld.com/72378). Both of these apps allow you to encrypt your smartphone's images and documents through 128-bit AES encryption, which should buy you some time if a snoop or thief manages to crack your password and starts rummaging through your phone.



TEXTSECURE OFFERS message encryption on Android handsets.

Even better, a handful of Android apps currently in development (that is, they're in beta) can encrypt your outgoing phone calls and text messages in real time. Our favorites among these communication encryption apps include RedPhone and TextSecure, both also from Whisper Systems. RedPhone (find.pcworld.com/72379) will automatically encrypt your phone calls, making it more difficult for anyone to listen in, while TextSecure (find.pcworld.com/72381) is a convenient utility that automatically encrypts any text-message conversations between you and other TextSecure users; the app also stores all of your text messages within an encrypted database.

—Alex Wawro

PHOTOGRAPH: ROBERT CARDIN

Disable a Laptop's Touchpad

WHETHER YOU LOVE touchpads or just tolerate them, they get in the way at times. If your laptop lacks a physical switch or keyboard shortcut to turn off the touchpad, you may be able to disable the feature through software.

Look for a touchpad icon in the notification area; double-click or right-click that icon to view the options and disable the touchpad if possible.

No such icon? Click *Start*•*Control Panel*•*Hardware and Sound*. Then under 'Devices and Printers', click *Mouse*. (In Vista, click *Start*•*Control Panel*•*Hardware and Sound*•*Mouse*.) Mouse Properties might have a tab where you can disable the touchpad.

Still no luck? Look for a touchpad software entry in the Start menu.

If you don't see that either, try one other option. Click *Start*, type **device manager** in the Search box, and click the *Device Manager* result. Expand *Mice and other pointing devices*, and right-click the touchpad's entry. In the pop-up menu, click *Disable*. Confirm your choice.

Finally, if you have touchpad software on your laptop, you may be able to adjust the touchpad's behavior without disabling it. For example, you might change the sensitivity of the touchpad or set it to ignore palm presses.

—Justin Phelps

HASSLE-FREE PC

Make Open Web Page Tabs Return at Restart

RICK BROIDA

In Chrome and Firefox, you can keep tabs open across your surfing sessions. Plus: Do browser security extensions affect page-loading speed?

I TEND TO have a lot of tabs open in my browser, such as for pages I haven't read yet. The thing is, I don't want to leave my PC running just so I can keep all these tabs "live." Nor do I want to bookmark them, as I don't intend to store them permanently. Fortunately, Chrome and Firefox each offer an easy way to keep tabs open from one session to the next—no plug-ins or extensions required. (Alas, if Internet Explorer 9 has a way to do likewise, I haven't found it.)

Here's how to enable the option in Chrome:

1. **Click the wrench icon that's located in the upper-right corner, next to the address bar. In the menu that pops open, select *Options*.**
2. **In the Basics section of Options, enable *Reopen the pages that were open last*. Close the Options tab. (Oddly, Chrome doesn't really have a Save option, but that's how it rolls.)**

The process is very similar in Firefox:

1. **Click the orange Firefox button, mouse over *Options*, and then click *Options*. (If your version of Firefox doesn't have the orange button, click *Tools*•*Options*.)**
2. **In the General tab, click the drop-down menu next to 'When Firefox starts', and then choose *Show my windows and tabs from last time*. Click *OK*.**

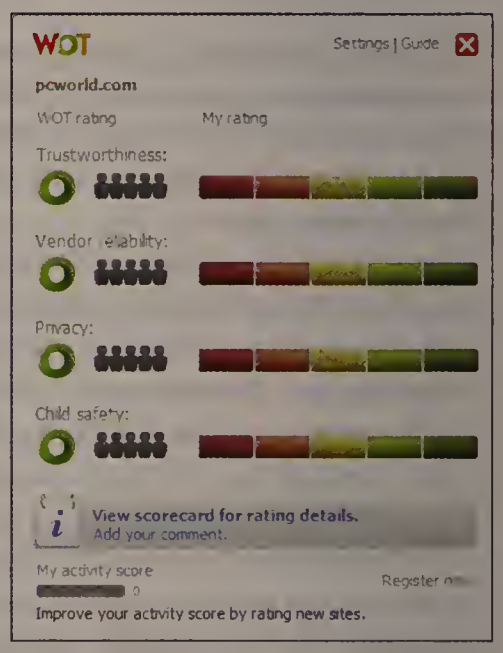
In both browsers, the change goes into effect immediately, meaning that when you close the browser, whatever tabs you currently have open will reappear when you run it again.

Some Sites Loading Slowly? Security Extensions Could Be to Blame

Recently I had been getting fed up with Firefox, in part because it seemed sluggish and flaky. That's when I turned to Google's Chrome. I liked Chrome well enough, but I noticed that certain sites were slow to load. It got frustrating in a hurry.

I checked Chrome's extensions, expecting to find only the two I'd installed. But I saw a third: McAfee SiteAdvisor, which must have come preinstalled.

After I disabled the SiteAdvisor extension, sites loaded much faster. Then I disabled SiteAdvisor in Firefox; same result. I won't say this is conclusive proof, but if you've encountered slow-loading sites and you have McAfee SiteAdvisor installed, try giving it the boot. Excessive security software often does more harm than good, so you should use only a minimal set of tools. In place of SiteAdvisor, I recommend Web of Trust (find.pcworld.com/70230).



WEB OF TRUST is a capable yet lightweight browsing-security tool.

I have to note, however, that I've since tried reenabling SiteAdvisor, and the slowdown problem has not resurfaced. Although disabling SiteAdvisor definitely did make a difference when I was experiencing these issues, other factors may have been at work too. ●

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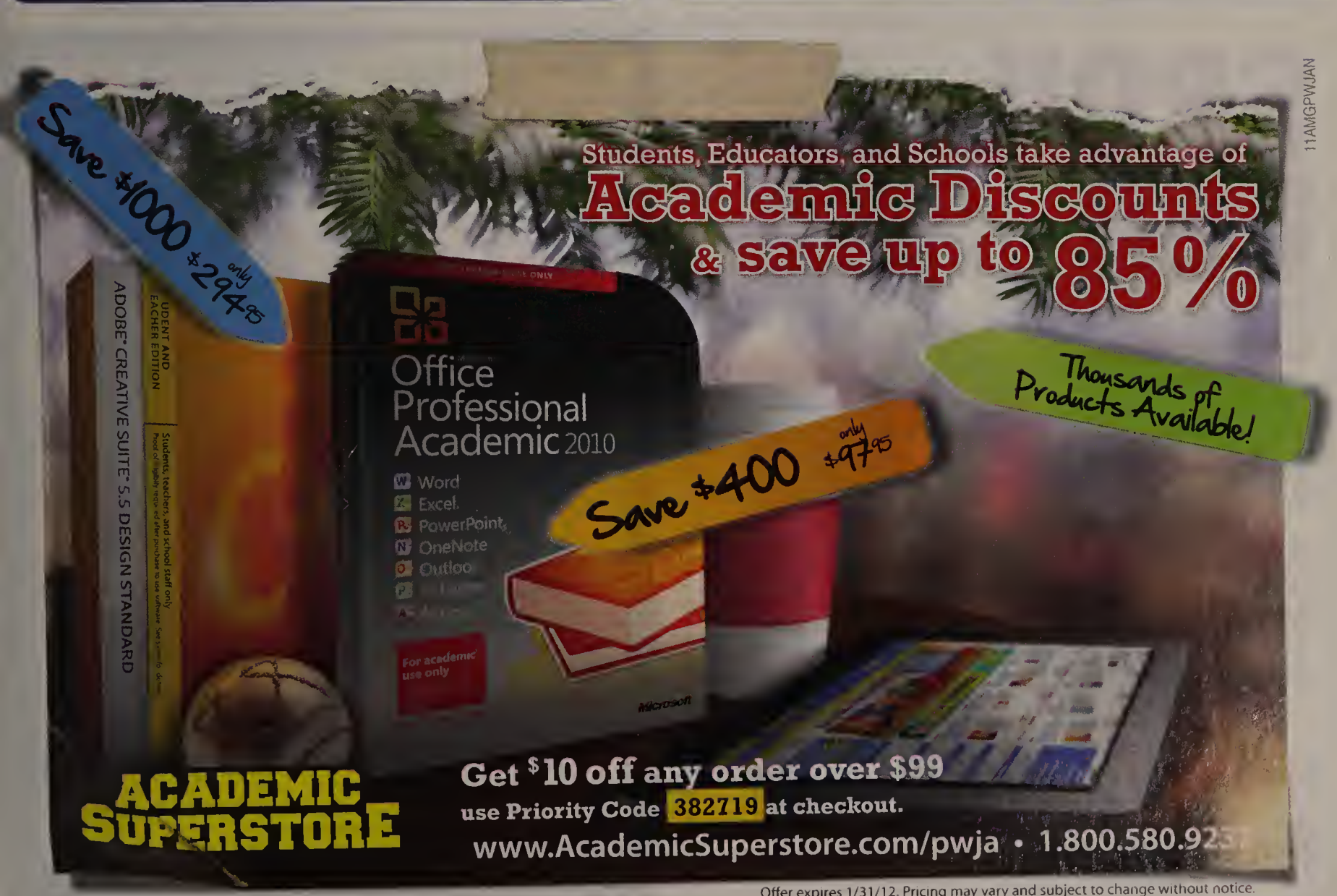

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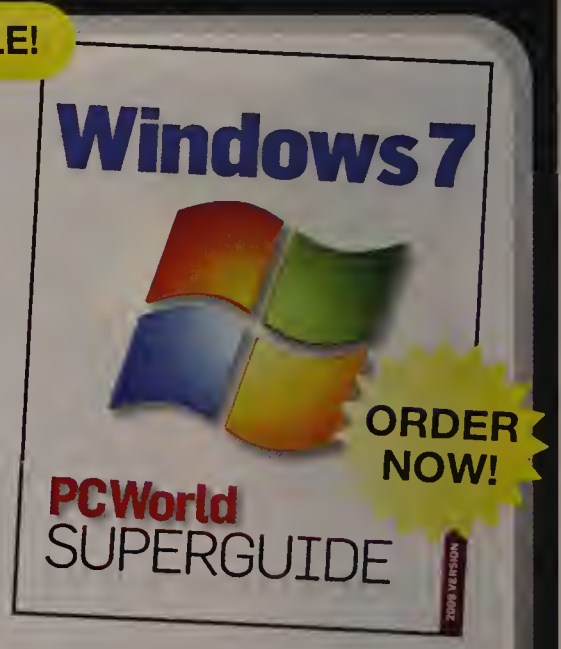

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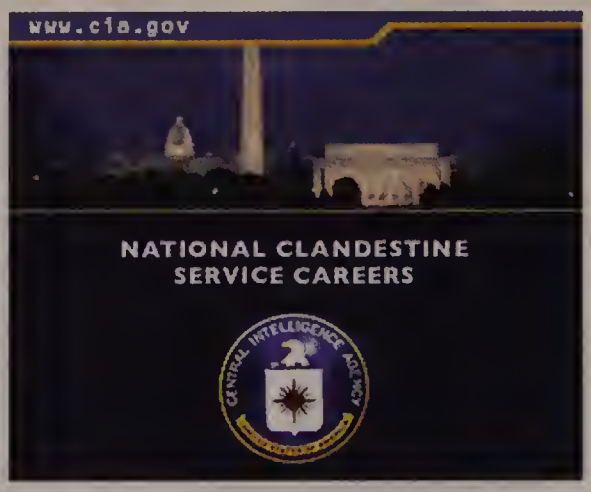
The Back Page

FROM OUR READERS

How Mom Made All That Cash

WHILE SURFING THE Web recently, reader Jon Gawne of Framingham, Massachusetts, stumbled upon these two unrelated ads, one directly above the other. As he notes, "Secrets are revealed when ads run together."



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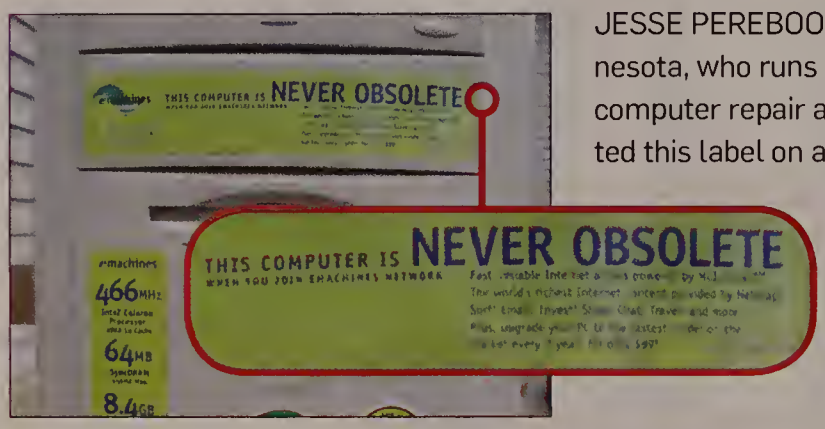

JESSE PEREBOOM FROM Scandia, Minnesota, who runs a small business doing computer repair and tech support, spotted this label on a client's old PC that he was recycling. And about that claim of never being obsolete? As a doorstop yes; as a usable computer, not so much.

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—Steve Fox and Steven Gray

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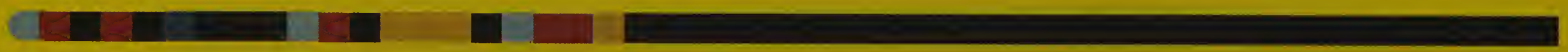

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